UNIVERSITY OF TORONTO
3 1761 01106679 2

Drug Education: Current Issues, Future Directions

R. G. Smart and Dianne Fejer

HV
5808
S43

ADDICTION RESEARCH FOUNDATION
OF ONTARIO

ARF BOOKS
PROGRAM
REPORT SERIES

No. 3

Digitized by the Internet Archive
in 2017 with funding from
University of Toronto

https://archive.org/details/drugeducationcur00smar

DRUG EDUCATION:

Current Issues, Future Directions

ARF BOOKS—PROGRAM REPORT SERIES

1. *The Treatment of Alcoholism,* by E. J. Larkin
2. *Ascent from Skid Row,* by D. F. Collier and S. A. Somfay
3. *Drug Education: Current Issues, Future Directions,* by R. G. Smart and Dianne Fejer

DRUG EDUCATION:
Current Issues, Future Directions

Reginald G. Smart, Ph.D.
Associate Research Director, Evaluation Studies,
Addiction Research Foundation

and

Dianne Fejer, B.A.
Senior Research Assistant,
Addiction Research Foundation

PROGRAM REPORT SERIES NO. 3

ADDICTION RESEARCH FOUNDATION OF ONTARIO

Toronto, Canada

HV
5808
S43

© 1974 by the Addiction Research Foundation of Ontario. No part of this book may be reproduced in any form—except for brief quotation (not to exceed 1,000 words) in a review or professional work—without permission in writing from the publisher and the authors.

I.S.B.N. 0-88868-006-6

Printed and Bound in Canada

CONTENTS

Preface viii

1 INTRODUCTION: DRUG USE AND DRUG EDUCATION 1

A review of the extent of drug use in North America and a discussion of the major problems of drug education, the difficulties in deciding goals, targets and methods are presented.

2 DRUG EDUCATION: AN INFORMATION PROCESSING APPROACH 10

A description of an information approach to drug education involving utilizing the most effective sources, channels and messages for all of the "receivers" or audiences. Research from the area of persuasion is reviewed for its possible utility in drug education planning.

3 RESEARCH INTO WHAT INFLUENCES THE EFFECTIVENESS OF DRUG INFORMATION COMMUNICATIONS 22

Research on the most effective sources, channels and messages from the area of drug education. Experimental and summary studies on the most credible and effective sources for both adult and adolescents is presented.

4 UNEVALUATED DRUG EDUCATION PROGRAMS FOR TEACHERS AND STUDENTS 39

A description of the curricula, programs and drug education guides for most North American programs. Programs are discussed as to type, source and audience.

5 AUDIOVISUAL AND PRINTED MATERIAL EVALUATIONS 55

Research on print and audiovisual materials in drug education. Approaches and methods of evaluation using both experts and consumers.

6 RESULTS OF DRUG EDUCATION EVALUATIONS 61

A critical analysis of all published and unpublished evaluations of drug education programs. Emphasis is on controlled or comparison studies with 'no treatment' control groups.

7 SUMMARIES OF CURRENT RESEARCH NEEDS AND ASPECTS OF IDEAL DRUG EDUCATION PROGRAMS. 82

Discussion of current research needs as indicated by the information-processing analysis and the review of evaluated programs. Suggestions are made for ideal drug education programs, both from the point of view of evaluation and content.

APPENDIX A 88

APPENDIX B 94

REFERENCES 97

Preface

Drug education as currently practiced has been called a hoax, a fraud, and an educational abortion. At present, even its most ardent supporters would have to admit that drug education has had few striking successes; and a handful of replicated programs have shown validated effects upon actual or reported drug use. However, fad, fashion and good taste still largely dictate the choice of any drug education program. The apocalyptic horsemen of drug education are over-use and lack of evaluation in exact criteria and effectiveness; together, they threaten its death.

A number of influential bodies have suggested a moratorium both on new drug education media and programs thus allowing assessment and testing for effectiveness of all those techniques which have not been tried. An important assumption here is that the correct techniques have been discovered and one need only identify them out of the available set; in fact, the performance of most multifaceted drug education programs can be termed dismal with few having been shown to reduce drug use and some even showing that recipients use more drugs and engage in more drug dealing afterwards.

If drug education is marked for oblivion, why continue to be interested in its development or possible effectiveness? Why not declare bankruptcy and close the books on drug education in all its forms? Well, few drug education programs or approaches have been tested in a rigorous or controlled way. Some of the most interesting programs have not even been implemented yet, and none have been based squarely on psychological or communications theory. We hold a possibly naïve belief in the value of "education" as such without claiming that the subject "drug education" has been very successful. However, not many aspects of health education have been successful without long and continued help from social and technological changes: family planning education, for example, only achieved success when easy birth control methods became available.

The goals of drug education cannot easily be achieved by technological "fixes" few of which are available anyway. This book takes the view that drug education should move more towards the controlled assessment of experimental programs, and that these programs should stem more from studies of communication and persuasion than from current educational or cultural fads. This may well be the long route to effective programs, and if it is not direct it will at least be more interesting.

We have reviewed both the drug education literature and certain studies done at the Addiction Research Foundation, and, in producing this book we thank many Community Development Offices of ARF for their cooperation in these studies, and we acknowledge the help of many people in the Evaluation Studies Department of the Addiction Research Foundation.

The authors owe special thanks to David Woods for his expert assistance in the editing of the manuscript.

Reginald Smart
Dianne Fejer
Toronto, December 1974

1 INTRODUCTION: DRUG USE AND DRUG EDUCATION

In Canada and the United States drug education has attracted greater emphasis in recent years because of serious increases in illicit drug use among adolescents and young adults.

Numerous education programs, audiovisual materials, books and pamphlets have proved useful—with the more formal programs and materials being directed at adolescents mainly through the school system.

Educating adults and non-school populations is not quite so easy and attempts by some communities and parent groups to conduct seminars and lectures for these people usually have been shortlived.

Educational material on drug use and abuse has also appeared on television and radio and in magazines in the last few years but most evaluations—such as O'Keefe's in 1971—are pretty negative. Most media presentations, as well as programs for parent groups, deal primarily with drug abuse among adolescents (Smart and Krakowski, 1973.). Our primary aim is to examine drug education programs and media created for young people as presented in school contexts. Programs of this type are certainly more numerous and intensive than mass media or other approaches.

We intend to review and discuss existing drug education and related research within the context of an information processing analysis. While at present we know that many types of programs and philosophies exist we rarely know their effects since only a handful have been evaluated. The organizer of a drug education program, then, is usually in the position of having to choose a method on the basis of personal preference, or current philosophy, with no indication of whether it will produce the effects he wants. By presenting relevant research in this field, and analyzing the known effects of various components of drug education, drug educators may have a more secure foundation on which to design or choose their programs.

The Extent of Drug Use and Trends Over Time

High school and college studies. As well as being the major target for drug education, the adolescent or young adult in school or university has also been extensively studied.

Smart and Fejer (1971c) reviewed the epidemiological studies of illicit drug use in Canada up to 1971. They found 22 studies dealing with the rate of marihuana use, of which 16 out of 22 were conducted among high school students. Most were carried out in large urban areas, some in entire counties, and, in one case, province-wide.

While the studies of high school students generally sampled entire areas (i.e. a city, county or province) the few college or university studies were each conducted on only one campus. Some areas, such as Toronto and Halifax, were studied during two different times in order to plot trends in drug use.

Marihuana was by far the most widely used drug among both high school and university students. Its rate of use in the earliest studies of high school students, conducted in 1968-69, ranged from two to 23 percent, but clustered between six and nine percent. The rates for the four largest and most carefully organized studies (those in Toronto, Halifax, Montreal and London, Ont.) averaged 6.9 percent.

Studies conducted in 1970-71 showed a much higher rate of marihuana use, and the five most recent surveys (in Toronto, Halifax, Ottawa, Niagara Counties, and British Columbia) show that the average rate of use is 17.5 percent.

University and college students, if you compare the 1968-69 studies with the later ones, show a trend towards increasing use of marihuana—and their use of the drug also tended to be considerably more extensive than that among high school students.

LSD use also is increasing. For example, the early studies of high school students in Toronto, Halifax, Montreal and London, Ont., showed rates of use from 1.2 to three percent. Studies in 1970 showed usage range from 6.6 to ten percent.

The use of glue and solvents among high school students ranged from one to ten percent in early studies with little clustering around the mean of 5.2 percent. Later studies produced similar variations from one area to another and showed only a small increase in the rate of use.

The studies on stimulants fell into two major groups—stimulants in general, and speed in particular (one specifying methedrine). Those conducted in 1968 and 1969 found rates of general stimulant use between 4.2 and 7.3 percent. Similar later studies showed very little difference: rates ranging from 4.5 to nine percent.

One study by Smart, Fejer, and White, completed in 1972 provides a trend pattern over a four year period. It includes three surveys of

Metropolitan Toronto students in grades 7, 9, 11 and 13, and indicates that illicit drug use (including alcohol) increased dramatically between 1968 and 1970; in fact, use of marihuana, LSD, and other hallucinogens tripled during this period, although there appeared to be little change in the use of such psychoactive drugs as stimulants (other than speed), tranquillizers and barbiturates, and a substantial decrease was found in the use of glue.

Between 1970 and 1972 the use of illicit drugs tended to stabilize: marihuana use increased from 18.3 to 20.9 percent, while the use of LSD and speed decreased significantly. Tranquillizer use increased substantially during this period, and there was also a marked increase, from 4.3 to 18.2 percent, in the use of barbiturates. However, the wording of the question on barbiturates was changed between the two surveys to include painkillers, and some students may have reported non-barbiturate painkiller use. Alcohol use increased from 60.2 to 70.6 percent, and glue use continued to decline between 1970 and 1972.

In the United States, Berg (1970) also compiled an extensive review of surveys on the non-medical use of drugs, most of which were conducted among college and high school students in metropolitan areas.

For high school students, Berg reports rates of marihuana use varying from a low of 12 percent in a Utah public high school study conducted in 1969 to a high of about 40 percent in San Mateo County, California in the same year. Rates for college students showed a similar large variation. The lowest rate of marihuana use reported (1969) among college students was 23 percent at Sacramento State College; the high was 44 percent at the University of Michigan.

Use of LSD ranged from a low of 4.9 percent among students in Utah high schools to 15.1 percent among those in San Mateo. A Gallup poll taken in 1969 indicated that only four percent of a national sample of college students had used LSD, while at the same time a national survey of college students by *Newsweek* showed the rate of LSD use at 8.2 percent.

Even larger variations were found for the use of amphetamines: only 5.4 percent of high school students in Madison, Wisconsin (1969) reported amphetamine use compared to 20.8 percent in the San Mateo County study (1969).

The trend, since 1965, has been for use of these illicit drugs to increase. For example, two surveys conducted in 1968 and 1969 among high school students in San Mateo, California, showed that marihuana use increased from 32 to 40 percent. A similar increase was observed in illicit drug use among college students.

Despite the emphasis of these surveys on illicit drug use among adolescents it should be pointed out that alcohol is the most frequently used drug (as it is among adult populations). As we mentioned earlier, over 70 percent of students in grades 7, 9, 11 and 13 in Toronto (Smart, Fejer and White, 1972) had used alcohol in the six month period prior to the survey. Alcohol use had increased by ten percent in two years among these students.

Problems in Drug Education

Since much of the publicity and research on adolescent drug use has occurred since 1965, drug education itself is a relatively new field. So it is hardly surprising that many people working in drug education find that they are grappling with numerous unsolved problems—among them poor program goal definitions, competition from mass media, defining the school's role, and training effective teachers. A more general problem is that so many programs are school centered rather than focussing on the population as a whole.

Despite indications that it would help many non-school groups, the fact that most formal drug education has been designed for schools is not surprising. Adolescents in school are captive audiences, and attendance is more or less ensured. On the other hand, programs for groups outside of educational institutions involves accommodation, special staff, advertising campaigns—and, of course, money. Attendance by non-school groups depends solely on voluntary participation. The cost also of programs designed for media such as TV or radio probably restricts greatly the scope and time that is given to such ventures.

All of these problems have meant that drug education programs for non-school populations are rare, and often limited to mass media public service announcements.

Difficulties in the field of drug education are also compounded by the state of the drug use problem. The study of drug use is a complex one requiring an understanding of epidemiology, physiology, pharmacology, medicine, psychology, sociology, and even criminology. Despite considerable research there is no clear understanding of the individual's motivation to use drugs, especially when he himself has suffered unpleasant drug reactions. Nor are we familiar with effective methods of treating drug users once chronic use has begun. Certain drugs may be available on the street before professionals have become aware that these exist, and before they can comment on the pharmacological properties and effects.

Research on many illegal drugs has been hampered for years by the almost insurmountable problems of securing street samples for testing, and only recently have some of these barriers been removed. There are also many ethical and moral problems involved in researching the effects of drugs on humans. For example, is it ethical to expose a naïve subject to a drug which may produce some ill-effects?

What all this means is that many questions likely to be asked about drugs in an educational program cannot be answered definitively.

Small wonder, considering how recently drug use has become a social and medical problem of wide concern, and considering the moral and ethical obstacles to good research, that our knowledge of many drugs is incomplete—and sometimes contradictory, a situation which complicates the task of organizing and conducting up to date and credible drug education programs.

Goals

A major problem in drug education lies in determining its goals.

Richards (1970) maintains that drug education goals vary, and some are clearly in conflict. Many programs, for example, have aimed at total abstinence—all illicit drug use, from experimentation to chronic use, is deemed undesirable behavior which must be prevented or discontinued. Other programs have the less dramatic aims of either minimizing heavy use of confining it to "less dangerous" drugs. Still other programs aim at inducing realistic attitudes toward drug use; in other words, orienting students toward a negative view of illicit drugs in the hope they would cut back on use of them. These latter programs might provide mild prescriptions for drugs like marihuana while stressing the dangers of opiates, speed and LSD. At the other end of the scale are programs designed to educate the individual about drugs—to give correct information upon which participants can base their own decisions about drug use.

Defining the goals of a drug information program is particularly important when evaluations of its effectiveness are to be undertaken. Evaluate on the basis of goals chosen by the evaluators, defined theoretically or in some other evaluation study, or established in keeping with some existing or assumed social good.

Competing Information Sources

Formal drug education programs conducted either in schools or through other community agencies face constant competition from a variety of other sources. Popular TV programs will often have cameo scenes of drug use; many best selling novels—as well as records and magazines—give compelling accounts of the lives of drug users, or of drug use practices; movies often portray the use of drugs, especially alcohol and marihuana, in highly positive terms. Taqi (1972) described some 72 commercial movies produced in the last ten years as having drug use either as a major or minor theme—among them *Alice's Restaurant*, *Blow Up*, *The Detective*, *The French Connection*, *More*, *The Panic in Needle Park*, *Easy Rider*, *Taking Off*, and *Play It Again Sam.* In most of these, "soft" drugs receive sympathetic treatment, but heroin use is usually displayed as punishing and undesirable.

For students, another very important source of information is the peer group. In many cases, this group will contain individuals with drug use experience who consider themselves well versed on the subject; in fact, despite efforts at drug education in many schools most students report having acquired their information primarily from the various media and from their friends (Fejer, Smart, Whitehead, and Laforest, 1971). Program organizers have no control over the often inaccurate information from these sources many of which may use highly persuasive techniques.

School Drug Education Programs

Although the school is the convenient place for adolescent drug education programs, what role should it play? For example, should the school attempt to eliminate drug abuse, or somehow reduce it, or should it simply educate on the subject? Some authors (e.g. Greenberg, 1971) feel that the school's role is to provide information to students so that they may make informed decisions about drug use; other authors such as Eiseman (1971b) take a slightly stronger position suggesting that the school is responsible for preventing drug abuse among youth. Again, the emphasis is on student decision, although Eiseman sees the school as directing students toward the decision to live without chemicals. Weinswig and Weinswig (1971) assert that "the school must become an aggressive combatant in the battle to educate youth in drug use and abuse".

Several authors, e.g. Aubrey (1971b) question the use of the school in drug education, at least in the school's present structure, philosophy and methodology. Aubrey also feels that schools do not have the trained staff, the funds, or the facilities for drug education.

Unlike most subjects taught in school which involve cognitive or intellectual factors, drug education is a value-laden topic. Teachers would need extensive training in communication skills as well as ease in their interpersonal relationships with students to undertake this task.

Kinsella (1971) considers that confidentiality is a further problem in drug education. Teachers must win the trust and respect of the students in order to conduct or be involved in any drug education program, and yet many schools require teachers to report suspected drug users or pushers. If a student reveals such behavior in, for example, a group discussion on drugs, the teacher is placed in the awkward position of either going against school policy and maintaining the trust of the students, or abiding by policy and losing that trust.

Kinsella suggests several ways of solving these problems: for example, school administration and teachers could set out clear guidelines on confidentiality before the program began. These would assure the confidentiality of information exchanged during discussion groups and also provide assurance that observations of the group would not take place without the entire group's permission. The group itself could establish that certain activities would not be discussed on a name, time or place basis.

Schoolteachers face several other problems regarding their classroom credibility on drug use topics. In some classes there may be many drug users who consider themselves experts about drugs, and much better informed than the teachers. Bland (1969) suggests that many students will probably consider the teacher out of touch with the times, a problem which may be partially overcome by careful preparation of teachers on the topic of drugs. However, this requires new facilities and special instructors plus a good deal of the teachers' time.

Can drug education programs actually have the reverse effect to the one that is obviously desired? Dearden and Jekel (1971) mention the possibility that school-based programs may actually arouse curiosity about drugs among the students—a particular concern in primary or elementary grades where few students have been exposed to drugs. Halleck (1971) also raises the issue of whether drug education may encourage usage and whether it may deflect attention away from the root causes of drug use.

The only solution to the problem is well-constructed evaluation to determine the effects of drug education programs.

What Method or Technique Should Be Used?

Richards (1970) has grouped drug education programs into seven major types:

1. *The "scare tactic" approach* emphasizes that illness, psychological disturbance, and death can result from use of various drugs. The basic philosophy is that fear of consequences will prevent drug use.

2. *The logical argument approach* involves the presentation of points of fact which the audience can assemble to make decisions about drug use. The presentation may be one-sided and, in this form, may resemble the scare approach. It may also be a two-sided presentation such as in panel discussions or debates.

3. *The authoritative source approach* is where an expert presents factual information as well as his opinions on the topic of drug use. The experts may be drawn from among doctors, researchers, enforcement officials or ex-addicts.

4. *The peer approach* in which students or adolescents present (or aid in) a discussion with other students. Often, student instructors receive special training and can take over the role of the teacher, but the whole group may act as a team in searching for the facts about drug use. It is assumed in this case that students will feel more comfortable in discussing and learning about this sensitive topic within their own peer group. This method also enhances the responsibility given to students and in this way may increase their motivation to learn about drugs.

5. *The cognitive or conceptual approach* usually involves the use of course guides and outlines which are intended to provide the individual with concepts about drug use from which he can build a cognitive foundation on which to base his decisions.

6. *Encounter methods* are closer to therapy than education. They involve attitudinal confrontation, sensitivity training, and discussion of attitudes towards drugs, towards others, towards society—and towards oneself.

7. *Drama and entertainment methods* such as humor and satire may be used to orient people to the problem, or to deglamorize it. The emphasis may be less fact or information-oriented than other approaches.

In the last two years even more models could be added to those of Richards. Zinberg (1972) proposes the "life problem" model for schools which includes such subjects as sex, adolescent-parent, or adolescent-peer relationships—as well as drug use. In other words, an approach in which drug use is not treated separately from other problems the adolescent may face.

Certain types of programs gain popularity at one point and then fade as new methods replace them. For example, the "scare tactic" approach is falling into some disfavor (Wald and Abrams, 1972) and the peer approach or logical argument approaches are gaining in popularity.

A final consideration for drug educators is whether drug users and non-users should be approached in the same manner. Drug users may consider themselves experts in the area of drugs, and therefore many programs may have a different impact on them than on non-users. This is a particularly difficult problem to handle within the school. If the program organizer decides on different programs for different groups he must have some logical method and rationale for separating them.

There are numerous problems associated with the field of drug education, then. As well, anyone wishing to organize a program has a wide variety to choose from. However, it is necessary to have a comprehensive analysis of the field in order to find solutions to these problems and methods for choosing programs. This will be the task of the following chapters.

2 DRUG EDUCATION: AN INFORMATION PROCESSING APPROACH

For a critical review of the many available drug education programs we need an analytic framework. We have chosen for this the information-processing approach described by McGuire (1970).

Despite the varied goals of drug education programs most appear to be aimed at prevention rather than cure or early case finding; in this respect, existing drug education falls squarely into the area of social influence and attitude change. An information-processing approach considers communications factors and how their manipulation affects attitudes and behavior.

To prevent drug use and abuse changes have to be made in the behavior and attitudes of those using—or likely to use—drugs. Essentially, drug education is communication designed to change certain attitudes or reinforce existing ones if these are already compatible with the ideal of prevention.

In the information-processing approach there are six mediating steps:

1. A relevant, persuasive message must be presented to the target person or group.
2. The target person or group must attend to this message.
3. The message must be comprehended.
4. The target person must yield to the conclusions of the message, and change his attitude.
5. He or she must then retain this change produced by the message.
6. He or she must change his (or her) overt behavior.

The main problem is ensuring that each of these steps will occur. Even getting the group to attend to the message may be difficult when the topic is a value-laden one on which they already have strong opinions.

Steps 4, 5 and 6 are the ones on which we have the least information; in fact, for most of the proposed or implemented programs we have no information as to whether the audience yielded to the message, or retained it; nor, except for a few programs, do we know whether it affected their drug using behavior.

These six steps have been called the dependent variables in the communication-persuasion process. The analysis also involves five classes of independent variables: source, message, channels, receiver and destination. Experimental manipulation of all these variables allows us to determine how the persuasive communication process can most effectively be achieved.

Source Variables: these include characteristics—especially credibility—of the person, or group, presenting the communication. For example, does the audience see the communicator as an expert on drugs? Does the audience value the communicator's opinion and does it trust that source to present the whole truth and nothing but? Such factors as the age, sex and even the attractiveness of the source may contribute to—or take away from effectiveness, and his or her perceived power may also affect the audience. Some authors (i.e. Bland, 1969) have questioned whether teachers actually know more about drugs than their students; our concern here, however, is with whether students *view* their teachers as experts.

Message Variables: In the past, one of the greatest message variable concerns has been the effect of appeals to fear. Moreover, the message may involve emotional components, or may be delivered in a particular style, for example, humorous or purely didactic; it may be one-sided (as in most fear appeals) or two-sided, as in debate. The discrepancy between the information presented and the receiver's position on the issue is another important consideration.

Channel Variables: These basically concern the medium or modality of communication. For example, the message may be presented through film, TV, radio, or newspaper; it could also be given face-to-face by a speaker or discussion leader. When considering channel variables in drug education we are most concerned with their relative efficacy.

Receiver Variables: The characteristics of an audience, including age, sex and personality, will influence whether it accepts or rejects the message. And the role these factors play in the persuasive-communication process is important. For example, the audience might be passive listeners to a lecture on drug education—or active participants in a discussion group. Other factors such as whether they have used drugs, their general susceptibility to the issue, their state of knowledge and comprehension level can all determine communication impact —or lack of it.

Destination Variables: Here, we are talking about the goals of communication, and whether they are being achieved. Does the communication process, for example, aim to *change* attitudes about drug using behavior? Temporal factors, such as rate of change and decay of change are important destination variables. Communication may have a direct effect on audience attitudes, or it may attempt to immunize against counter-arguments.

Variables associated with source, message and receiver characteristics have been the subject of several well-designed social psychology studies. But this has not been true of some of the other classes of variables, the least adequately studied of which are destination and channel. What follows is a brief account of how some of the research bearing on the effects of manipulating these variables can be applied to drug education.

Source Factors in Drug Education: Current Research and Theory

The first two source factors of major concern to us here are the expertness of the source, and his trustworthiness (Hovland, Janis, and Kelly, 1953). These are, of course, interdependent and relate to a number of other source characteristics. Giffin (1967), who has reviewed much of the literature on credibility and interpersonal trust, concludes that interpersonal trust is based on these six major perceptions by the receiver:

1. Expertness.
2. Reliability.
3. Intentions.
4. Activeness.
5. Personal attractiveness.
6. The majority opinion of the listener's associates.

How can we apply these factors to drug education? First, the communicator *must* be viewed as an expert in the field. Certain professionals with special training such as doctors, research scientists or pharmacologists are likely to have the pertinent information and ability but these particular types of experts may not be in large enough supply. Perhaps, with special training and preparation, other groups such as teachers, student leaders and community workers could become experts—

although, again, the special concern here would be that the audience *perceive* them as experts.

Abilities other than pure knowledge affect whether or not the communicator will be viewed as an expert: for example, his age may, in the audience's view, reflect his experience; his leadership, his similarity to the audience in status, values, interests and needs will also affect audience response. Some of these factors may even conflict and must be sorted out experimentally. A young person such as a pharmacy student or intern, for example, would probably be viewed as having values, interests and needs more similar to those of high school students than would a veteran researcher with 20 years experience in the field. And, on such a sensitive topic as drug use, it may be that relative empathy between source and audience would be more likely to occur between a young expert and a student audience. However, this hypothesis needs experimental testing. Several researchers have suggested or used young "experts" such as pharmacy students (Morris, 1971) or interns (LaCombe, Arseneau, Hamill, Hanson Lookingbill, Meharg Jr., Riley, and Ware, 1970) but have provided no evaluation of their suitability. Stukat (1958) found that adolescents are most influenced by those "moderately older" than themselves rather than the same age or a good deal older. Graduate students or interns may fit into this "moderately older" group quite well.

The perceived motives of the source are also important when considering his influence and trustworthiness. For instance, if the audience feels that the speaker is attempting to make them stop using drugs, they may be less likely to trust his information than if he is simply providing them with the facts. This is especially true if the source is perceived as having something to gain—such as a teacher succeeding in reducing a previous drug problem among his students and being viewed as merely seeking acclaim from other staff members. In fact, one may wonder most about the motives students would impute to, say, home room or guidance teachers whose role often appears to contain elements of guiding the student along the "correct" path, rather than merely educating.

These and other factors are difficult to test experimentally and equally difficult to control when selecting a source. Such variables as likeability, friendliness, personality, prior expectations of the audience and dynamism may be important but will not be of great concern here because of the lack of drug education related research on them.

Ex-addicts or drug-users as the source in drug education programs are probably viewed by some students as experts because of their particular personal experiences; in many cases they may have some basic similarities to the audience in age and philosophy. However, if the audience is composed largely of non-users, they may differ on some basic moral and philosophical issues.

Louria (1971a) suggests that while ex-addicts or users do arouse interest they may place themselves in a position of esteem and authority which may enhance their status in the eyes of the audience; they are also placed in a position which can be abused without careful preparation and control. Other authors (i.e. Haggerty and Zimmering, 1972; McCune, 1970; Geis, Morgan, Schor, Bullington and Munns, 1969; Kline and Wilson, 1972) report that students are very interested in information presented by ex-addicts and often report favorable reactions to their programs. But to determine the influence of such people as sources of drug use information we need specially-designed evaluative studies.

Message Factors in Drug Education

The *content* of the message is of particular concern here. Since drug use is an anxiety arousing topic, it is important to distinguish between fear-arousing messages. Several authorities (e.g. The National Commission on Marihuana and Drug Abuse, 1973; Le Dain, 1972; Flegle, 1971) warn against the use of fear tactics in drug education.

In general, research on the persuasiveness of fear appeals contains many conflicting results (Higbee, 1969). One particularly well-known experiment conducted by Janis and Feshbach (1953) involved three versions of an illustrated lecture on dental hygiene to high school students, and each varied in the degree to which it attempted to arouse fear. Janis and Feshbach found a negative relationship between reported conformity to the recommended procedures and level of fear; in other words, minimal or low threat messages were most effective. Higbee (1969) also points out that an almost equally large number of studies have found no relationship and some which have found a mixed relationship (i.e. high fear messages associated with attitude change but not related to behavior change).

However, the *majority* of recent studies that Higbee reviewed showed a *positive* relationship between fear and persuasion. In other words, strong fear was more effective in changing attitudes and behavior towards dental hygiene, smoking, tetanus inoculations, driving practices, fallout shelters, tuberculosis, roundworms, proper viewing of the sun during an eclipse, and the use of handrails for safety. Despite this trend, Higbee suggests that there are not enough recent experiments to explain the contradictory results of earlier ones. Some authors such as McGuire (1968) and Janis (1967; 1969) have hypothesized that the relationship between fear arousal and persuasion describes an inverted U: until the fear reaches a relatively high level, the theory predicts increasing attitude change; however, at very high levels of fear, attitude change will decrease since the subject will start defending himself against noxious stimuli, and this will interfere with his reception of the message. The question remains—at what point does the curve turn? Possibly this point can only be determined after the data have been collected.

Higbee also concluded that the response to fear arousal differs among individuals: subjects with high self-esteem were more persuaded by a high threat appeal than those with low self-esteem; also, a subject's perceived vulnerability to danger interacts with threat level (Niles, 1964) so that high fear is more effective than low fear when people are not especially vulnerable to threat.

Despite the trend in drug education to condemn fear appeals they should not be dismissed without proper testing. Perhaps the sources of past programs with fear appeals have not been especially credible for the audience. Evidence which adequately evaluates levels of fear in a drug education message and its effect on the audience is totally lacking; certainly, fear appeals based on a patently non-factual foundation are doomed to failure because the message itself lacks credibility. However, that should not lead to dismissal of approaches stressing the negative aspects of drug abuse and which do have a factual basis.

Should the message be one or two-sided? A large number of programs (e.g. Smith, Mikeal and Taylor, 1969; State Street Center Number Nine Youth Crisis and Growth Center, 1972; Swisher and Horman, 1970) have advocated or included such methods as panel discussions, or urged a "balanced" approach. In these cases, different positions on drug use may be presented in the same program. The most important variables to consider when making this choice appear to be audience intelligence level, age, and pre-program position on the advocated side. Sears (1966) found that if the audience does not know much about an issue and is relatively intelligent it appears best to present both sides. If the audience is against the position advocated, but reasonably intelligent, again both sides should be presented. However, if the audience is in favor of the position advocated, and not too intelligent, a one-sided message may be more effective (Lumsdaine and Janis, 1953; Hovland, Janis and Kelly, 1953; McGinnies, 1966). With young audiences such as elementary school students who may have difficulty grasping concepts in drug education, perhaps only one-sided presentations should be used; however, depending on the anticipated attitude of the audience, two-sided presentations may be effective among high school students and adults.

Channel Factors in Drug Education

As mentioned earlier, there has been little research into the effectiveness of various channel variables. In drug education it would be a great advantage to know the relative effects of various media for presenting information. Drug education programs have involved face-to-face communication by means of a teacher, speaker or discussion group, but have also included movies, TV programs, newspaper and magazine articles, and books.

In general, the literature indicates that face-to-face contacts rather than television have a greater influence on certain types of behavior, for example, voting and buying behavior (Katz and Lazarsfeld, 1955; Berelson, Lazarsfeld and McPhee, 1954). Other authors suggest that "channels which allow the audience to proceed at its own pace, as in reading, asking questions and obtaining clarification, and in face-to-face encounters are most likely to maximize comprehension" (in Triandis, 1971). Triandis indicates that the more difficult the subject matter involved the more necessary these types of channels become, and he also reports that face-to-face communications are more effective than other channels in maximizing yielding.

However, there are other channel variables to be considered besides the relative impact of a medium on an audience; one of these is exposure. The smaller the group to which a source addresses a face-to-face communication the more effective that communication will be. In small groups, issues can be clarified and questions answered more readily. But this method is self limiting since one needs an expert communicator who, at any one time, can reach only a very small segment of the population. Media like television, on the other hand, have the potential of influencing, even if to a lesser degree, very large audiences.

The mass media, of course, involve selective exposure: drug education programs on television or radio will not necessarily be watched or listened to, and this may be important if they are directed toward a special audience such as current drug abusers who, as McGuire (1970) suggests, may have a different pattern of media use than the population in general.

Time spent watching TV also varies with age. Maccoby (1964) reports that television watching among children, for example, reaches a peak between the sixth through eighth grade, and drops off in the high school years.

Receiver Factors in Drug Education

Receiver variables have attracted considerable attention in the field of attitude change, particularly the effects of personality and social characteristics.

Many receiver personality characteristics, especially, are not very important considerations in drug abuse education. Often, the program organizer already has a target audience which has not been specially chosen or cannot be subdivided on the basis of personality characteristics; the concern is to effect some change in the group and not in just subsections of it. There are, however, several receiver variables such as age, sex, intelligence, education level, anxiety, and active versus passive participation.

McGuire (1969) concludes from his review of research into chronological age and susceptibility to influence that maximum suggestibility occurs at about age eight or nine, and that it tends to increase up to this age—after which it drops until adolescence where it tends to stabilize (Stukat, 1958). Females tend to be more susceptible to persuasive communications than males (Janis and Field, 1959; Knower, 1936).

In general, there appears to be no clearcut relationship between suggestibility (or susceptibility to persuasion) and intelligence (McGuire, 1970), although it may, as we have seen, interact with the style or presentation of the message. The relationship greatly depends on the complexity of the message, the type of presentation and other personality variables of the receiver.

The audience's anxiety level may be an important receiver variable to consider in drug education—itself an anxiety arousing topic—especially when the program organizer knows or suspects that a large proportion of the audience may be drug users. There is some indication (Fejer and Smart, 1972a) that drug users have higher levels of manifest anxiety than non-users. McGuire (1970) suggests that with drug abusers a relatively simple message that presents an easily available solution would be most effective.

The literature on active participation and the persuasive impact of a communication is also contradictory. Fox example, when the receiver is required to participate in drawing up the conclusions to a message he does not appear more persuaded than when he passively *reads* conclusions (Hovland and Mandell, 1952; Thistlethwaite, de Haan and Kamenetsky, 1955). However, some authors (e.g. Greenbaum, 1963; Jansen and Stolurow, 1962; McGuire 1961) have found opposite results.

It appears, then, that drug education has the greatest influence on children eight and nine years old, and the more females in the audience the greater the chance of persuasion.

It is uncertain whether the audience benefits from active participation in the communication process; it may be necessary to use different techniques with drug users than with general populations.

Destination Factors in Drug Education

Research in destination factors has focussed mainly on measuring the type of impact a communication has and its longevity. Most drug educators aim more or less at permanent attitude change, so a program which produces or reinforces negative attitudes toward drug use for a week or two but which quickly dissipates would not be particularly useful.

Studies of the permanence of attitude change induced by a persuasive communication give varying results. McGuire (1969) states that a summary of the literature suggests that the attitude change produced by a "typical" persuasive communication has a half-life of about six months (Cherrington and Miller, 1933; Hall, 1938). Although some studies have indicated more rapid decay; for example, Watts and McGuire (1964) report a 60 percent decay of initial attitude change after six weeks.

McGuire (1969) has reviewed the literature on factors which affect the rate of decay of induced attitude change. Basically, there is an interaction among source, message, channel and receiver variables, and time passage. For example, a message originating from a positive source decays more rapidly than one attributed to a negative source. Complex messages produce a slower decay than attitude change produced by an explicit or clear communication (Cohen, 1957; McGuire, 1960; Stotland, Katz and Patchen, 1959), and attitude change is more persistent when the receiver actively participates in the communication process (McGuire, 1964; Watts, 1967).

A delayed-action or "sleeper" effect (Hovland and Weiss, 1951) has also been observed after a persuasive communication. In this case the impact of the communication tends to increase for a short period after its presentation. Some time may be needed for the learning process to take place and for the information to translate into attitude or behavior change.

These types of studies are particularly important in evaluating drug education programs. For example, if a program involves only a one hour lecture session and then immediate testing of its effects that testing may occur during the processing period itself, when the full impact of communication may not have been achieved. Similarly, the attitude change induced may be only of limited duration and evaluation studies would be needed after varying time periods.

Another important destination variable is the program goal: does it aim at attitude or behavior change? Many programs are based on the assumption that, by changing attitudes towards drugs behavior will naturally change to match those attitudes. However, the literature on the relationship between attitudes and behavior does not show such a consistency (Wicker, 1969). In fact, research tends to support the opposite hypothesis more fully, showing that attitudes are more likely to become consistent with behavior rather than the reverse.

The audience may be treated so that it becomes less receptive to future communications rather than directly influenced by means of a persuasive communication. McGuire (1964; 1969) outlines a number of procedures used to immunize a pre-treatment audience. The experimenter can induce resistant motivational states in the audience. For example, self-esteem can be increased by means of manipulation of successes and failures. When a person has experienced a success he often becomes more resistant to influence (Hochbaum, 1954; Stukat, 1958).

Another approach concerns behavior commitment. This method induces resistance by having the receiver perform some irrevocable behavior on the basis of his belief—such as making a public announcement of his belief, or writing an essay in support of it.

A third approach is to anchor the belief or attitude to others the individual or audience may hold; in this way, the individual would have to change a whole series of linked beliefs or otherwise suffer the discomfort of cognitive inconsistency. To achieve this anchoring, the person may be sensitized to the idea that this new opinion is logically related to his other beliefs; another method is to make the receiver believe that a particular opinion is held by people he holds in high esteem.

Pre-training may also be used to provide skills for resisting persuasion. For example, the individual or audience may be trained in selective avoidance or perceptual distortion of communications which are not in agreement with this belief. Training may also be directed at providing skills by which a person may more critically evaluate new information.

The final pre-treatment approach involves inoculation against persuasion by means of cultural truisms that are rarely attacked, so that there are few counter-arguments or methods of defending them. McGuire, who found that cultural truisms were quite vulnerable without prior immunization treatment, also discovered an effective method of building up resistance to later attacks on a particular belief—to provide a defense framework for the individual by a series of communications which threatened the truism, and then material which refuted the attack. In these experiments resistance conferred by refuted counter-attacks seems to generalize to attacking arguments other than those used in pre-treatment.

Several of these methods may be useful in drug education. The inoculation approach could be particularly so when there are certain beliefs on which people agree, such as that occasional use of drugs is harmless. Methods such as anchoring a belief to others held by the audience may be difficult with large groups of heterogeneous audiences; similar problems will arise when trying to manipulate their motivational states. Although both methods could be used in small group settings, the commitment approach could be particularly useful in a classroom setting.

SUMMARY: INFORMATION PROCESSING APPROACH

In this chapter we have given a brief overview of the information processing approach and how it may be applied to drug education. The literature on effective communication suggests some techniques which should be tested in drug education.

The studies we have presented found that the source must have expertise and credibility, and since in the field of drugs this would most often be doctors and scientists, it would be beneficial to test programs presented by such people. However, using these experts would restrict the extent of programs because of their limited supply and the heavy demands on their time.

A second line of attack would be to create experts from among other members of the community such as teachers. Efforts have been made to do this (see Chapter 4) but before we assume that two or three day workshops create experts we must test student reactions to specially-trained teachers. Only teachers who are *perceived* as experts by the students, and felt to have credibility, can be truly effective.

Young people such as university students—especially those in medicine and pharmacology—may be good sources because of their expertise and similar age and values to high school students, although this group would not be of particular value in adult programs.

It would be useful to test fear messages in drug education since the literature is not conclusive about these; balanced, two-sided messages should be compared with one-sided messages and should be tested at varying age levels.

Face-to-face communications such as those occurring with a live speaker, teacher or discussion group seem to have more influence than those presented by the various audiovisual media. However, these types of communications have limited audiences. Small group discussions or presentations to small groups with question and answer periods allow for maximum clarification of issues. If one wishes to reach large audiences within a short time span, media such as TV would seem most appropriate.

Characteristics of the audience for a drug education program are also important. In many cases, however, the program organizer is unable to choose or separate audience characteristics. Age and education level should be considered before organizing a program. Very young audiences (i.e. under 10) appear to have the greatest capacity to be influenced. Comprehension is closely related to age and intelligence. Whether or not a large proportion of the audience uses drugs is important. Drug users may be more influenced by simple messages with readily available solutions.

Once a communication can be shown to be effective it is important to know just how long that effect can be expected to last. Evaluation studies must therefore incorporate periodic follow-up to determine the rate of decay of the effect.

Program goals must be clearly defined, and efforts measured in terms of them. It seems clear that changing only *attitudes* towards drugs, while socially useful, does not ensure that drug *using* behavior will change. Several methods for immunizing the audience against future pro-drug arguments have been suggested—and these may be particularly useful since people are being constantly bombarded with new and contradictory sources of information.

3 RESEARCH INTO WHAT INFLUENCES THE EFFECTIVENESS OF DRUG INFORMATION COMMUNICATIONS

Few studies have systematically investigated the effects of manipulating any of the various source, message, channel, receiver, and destination variables in drug education. This is rather surprising in view of the wealth of attitude change literature which suggests that close attention to these variables may lead to great improvements in the quality of drug education. A larger number of studies have attempted to examine the validity of some of the basic, underlying principles upon which drug education is based; for example, that knowledge immunizes against use, that the best sources are teachers, etc.

Because of ethical problems when using students for experimental purposes in drug education few experimental studies have been made. For example, it may appear that certain communications have little deterrent effect on drug use, and could actually encourage use. Although this proposition would have to be tested many parents and school officials are reluctant to allow such testing.

Only four experimental studies are available on the effect of information processing variables in drug education: two manipulate the source of a particular drug education message; one relates to the effects of type of communication regarding smoking behavior on communicator credibility and attitude change; in the other, the fear content of the message is manipulated and studied in relation to the drug use and anxiety level of the audience.

Research on channel variables has been similarly limited. While printed drug education material has received little attention in drug education research, the frequency and type of message used in popular magazines has been investigated. Also, the phenomenon of selective exposure among drug users and non-users has been studied.

Some studies have investigated the interrelationship of knowledge about drugs, attitudes towards them, and their use. These are important components of the destination of a drug information communication. While students could have been informed about drugs, it was not clear what effect this would have on their attitudes about drugs and their drug use; similarly, it has not been demonstrated that negative attitudes towards drugs coincide with abstinence or non-harmful drug use.

Source and Receiver Variables in Drug Education

High School Students: One study (Fejer, Smart, Whitehead and La-Forest, 1971) reports questionnaire data on the relative importance, in terms of use, of five sources of drug information: church and school; the news media; the family; friends, and own experience, for over 12,000 elementary and high school students in three Canadian cities (Toronto, Montreal and Halifax). The questionnaires were anonymous and asked the same question in all three cities.

When asked from which source they felt they had learned the most about drugs, students in all three cities most frequently chose the news media. Between 40.6 percent and 63.4 percent of the students in each city chose this source. The proportion choosing the remaining sources varied considerably from city to city, with over 20 percent of students in Toronto and Halifax learning the most from friends but less then two percent choosing this source in Montreal. Nineteen percent of Montreal students and 22 percent of Halifax students learned most from their school or church as compared to only 10 percent in Toronto. Few students learned the most from their families.

Two more recent studies conducted in Toronto found similar results to the data from Toronto and Halifax in 1968-69. These studies (Smart, Fejer, and White, 1970; and Smart, Fejer, and White 1972) also found the mass media to be the major source of information for students. However, when the three Toronto surveys are compared, the mass media shows a slight decline (about six percent) in importance from 1968 to 1972. Friends and church or school appeared to have increased slightly in importance among students during this same period.

One study conducted among students in a smaller urban area—Timmins, Ontario—(Annis, Klug, and Blackwell, 1971) produced somewhat different results: in Timmins, the school was the information source for 30 percent of the students; the mass media accounted for only about 20 percent of their responses. Timmins is situated in northern Ontario far from large urban centres, and mass media are probably less available and less varied.

Another study of a semi-rural area is Ontario—Haldimand County—

(Smart and Fejer, 1972) found that students in this area acquired most of their knowledge about drugs from the news media. However, this county is not far from Toronto and has newspapers, magazines, and radio and TV programs, similar to, or the same as, those in Toronto.

The Timmins study indicates that special attention should be given to the individual community's resources and information sources.

Data on the most widely used sources of information about drugs other than marihuana were collected among 2,922 students in Montgomery County, Maryland (Elseroad and Goodman, 1972). On a five answer scale from "a great deal" to "not at all" the students judged how much of their information they acquired from a) friends; b) parents; c) exhibits on drugs; d) reading about drugs; e) school classes; f) being shown drugs; g) seeing drugs used; h) trying drugs.

Discussion with friends was the major source of information for all respondents. Many students said that reading about drugs taught them a lot; but school classes, and the various experiences with drugs, were not major sources of information. One problem in comparing Elseroad and Goodman's study with those conducted in Canada is the difference in response categories since they do not specifically mention media sources.

Sources for Adults: Only one study (Smart and Fejer, 1971d) has looked at sources of information among adults; its data were collected in a survey of psychoactive drug use among 1,200 randomly selected adults in Metropolitan Toronto who answered questions similar to those asked in the high school study (Fejer and Smart, 1973), although the choice of categories was expanded. The survey also involved questions about information sources for another important social issue—abortion—which were included to assess whether a particular source was most used for drug use specifically, or for social issues in general.

As among adolescents, the mass media were the most important sources of information for adults, accounting for 59.1 percent of responses. The next most frequently chosen source was "medical doctors", but they were chosen by only 12 percent of the sample. None of the other choices—including family, friends, church and school, ex-users, users and pharmacists—individually accounted for more than seven percent of replies.

Results on the abortion question were very similar to those on source of most drug information. By far the majority (71.5 percent) of adults acquired most of their information about abortion from the news media. There may be a general tendency for adults to acquire information on health issues from mass media and the phenomenon may not be specific to drug use information.

Drug Use As a Receiver Variable And Its Relation To Most Used Source

Because all of the studies mentioned included questions on drug use we can compare the most often used source for drug users and non-users.

In the study by Fejer *et al* (1971) a similar relationship between drug use and most used source was found for Toronto and Halifax students but not for students in Montreal. Students in all these cities were asked to describe their drug use as "have used", "might use", and "won't use". In Toronto and Halifax between 34 and 37 percent of the drug users acquired most of their information from friends, followed closely by their own experience (30 and 34 percent). The "might use" group in Toronto acquired most of their information from the media, although the proportion using the mass media was even larger for non-users. In Halifax, friends were the most used source for the "might use" group followed closely by the mass media. Halifax students who had not used drugs also relied most heavily on the mass media for their information. In sharp contrast almost 80 percent of drug users in Montreal acquired most of their information from the mass media.

The two other Toronto studies (Smart, Fejer and White, 1970 and 1972) as well as the Timmins and Haldimand County studies all found results similar to Toronto and Halifax data: friends and own experience were the most used sources by drug users.

The Maryland study (Elseroad and Goodman, 1972) compared the most used sources of information on drugs other than marihuana for marihuana users and non-users. Discussion with friends, and the various experiences with drugs, were used more by marihuana users than non-users for this type of information. School classes and reading about drugs were less important for users than non-users.

Among Toronto adults (Smart and Fejer, 1971d) marihuana users also acquired their information most often from friends, while non-users acquired theirs from the mass media. An interesting finding in this study was that marihuana users acquired their information about abortion in much the same way as they learned about drugs—primarily from friends.

Drug users and non-users differ considerably in the sources of drug information from which they acquire their information about drugs. Drug users may have a different method of acquiring information on a wide variety of topics than non-users, and this may in part reflect a difference in style of life. Users may have to be contacted through more informal channels, such as peer groups, while the media, or perhaps more effective school programs, could exert more influence on non-users.

Demographic and Personality Characteristics of The Receiver And Most Used Sources

Only a few audience characteristics—age or grade level, sex, and alienation—have been studied in relation to the most used sources of drug information. In their Toronto survey, Smart and Jackson (1969) taped discussion group sessions before giving out the questionnaire. They indicated that age may be an important receiver variable, and that control over attitudes tended to shift from parents in early grades to peers in later grades.

Data from the 1970 Toronto study (Smart, 1971) allowed a comparison of the sources from which students of different age and grade levels learned most about drugs. The mass media were the most frequently used sources for all grade levels except grade 13 where friends were the most important source. The family was also an important source among the youngest students in grades 6 and 7, but this source accounted for only 1.9 percent of the responses of the grade 13 students. The use of church and school for drug information also declined rapidly with age, but the influence of friends and the students' own experience increased markedly with age and grade level while the mass media appeared to have a substantial impact among students regardless of age. Even among grade 13 students almost 40 percent reported getting most of their information from mass media, and this source is second only to friends.

Smart (1971) suggests that when drug education is directed at audiences with varying age levels the mass media are probably the most influential. However, family and church or school may be effective institutions for drug education among younger students, while older students need to be approached through the peer system such as in student run programs, and discussion groups.

Smart found few differences in the source between the sexes, with both males and females most frequently reporting the mass media, followed by friends, as their sources of drug information. There was a slight tendency for females to view family and church and school as most important more often than males, but less often to view their own experience as the source from which they acquired most of their knowledge about drugs. Since differences in attitudes between the sexes are very small, differential sources for males and females seem unnecessary.

One personality dimension, alienation, has been studied in relation to drug use and information sources (Smart, Fejer, and White, 1970; Smart, 1970). Smart, Fejer, and White (1970) found that students with a high alienation score (Dean Scale) were more likely to have used a variety of licit and illicit drugs than those with low alienation scores. Smart (1970) found that the most alienated students depended more on friends than did the less alienated students who relied on the mass media. Students high in alienation also depended less on church and school than students low in alienation.

Smart also concluded that school drug education programs will have even more difficulty reaching the alienated than the unalienated students. Peers seem to be the most used source among alienated students which again suggests that peer oriented or peer controlled drug education programs will be the only type with much influence on this particular group.

Questionnaire Surveys Investigating the Credibility of the Source

Studies on the most used sources help in determining where students get their information but do not explain why that source is used—or how effective it is. While one may speculate that the mass media in Toronto, Halifax, Montreal, and probably other large cities, may be most used because they give the greatest exposure to drug information, other factors such as the credibility of the source may also be important.

Smart and Fejer (1972) investigated the credibility of the sources of drug information among a sample of Ontario high school students. The relative credibility of various sources of drug information including the mass media, school personnel, families, drug users, and other students was investigated among 2,507 students in Haldimand County, Ontario, by Hovland, Janis and Kelley, (1953), in terms of two variables—expertness and trustworthiness.

Students were asked, through anonymous questionnaires, which general sources they trusted most as well as which communicators they felt were most expert. When the media were compared with teachers, parents, students who used drugs and those who did not, it was the most trusted source (about 44 percent of the students) with "student drug users" being the only other significant source.

When asked which communicator they most trusted, the majority (53.6 percent) of the students chose a doctor or scientist, although 22.4 percent said they trusted a teacher who was an expert on drugs, or a friend who was a drug user (18.7 percent. The students also perceived doctors and scientists most often (57.8 percent) to be the experts about drug use, although 38.3 percent also felt that drug users were experts on this topic. Very few viewed teachers, parents or news reporters as experts.

Despite differences between Timmins students and those in other areas concerning drug information sources (Annis, Klug and Blackwell, 1971) Timmins students tended to *trust* the same communicators as did Haldimand students.

A study conducted among 1,379 students in 11 high schools in Michigan (Bogg, Smith, and Russell, 1968) also inquired about the effectiveness of various communicators by ranking nine sources (school counsellor, health and safety teacher, police officer, minister-rabbi-priest, father, drug user, physician, university professor, and public health doctor) according to the value they would place on advice given by any of these people. Physicians and university professors ranked high; school counsellors, health and safety teachers, police officers, ministers, rabbis and priests ranked low. And fathers and drug users ranked in the middle range.

Toronto adults trusted, and viewed as most expert, the same communicators as did students—i.e. medical doctors and research scientists—and rated these same professionals as most trustworthy and expert on the topic of abortion, too. (Smart and Fejer, 1972).

When broad sources of information are the basis of inquiry, the mass media appear the most trusted source. When viewed in terms of specific communicators, scientists and doctors and university professors are most trusted and viewed as most expert for both students and adults. News reporters are not viewed as experts in the area of drugs despite the trust placed in the mass media. It could be that much information presented via the media is seen as *originating* from scientists and doctors. Teachers, unless they are known to be expert about drugs, generally have low credibility with students, but if they are properly trained for drug education teachers could greatly influence non-using students. An important area on which to concentrate future studies is the information presented by doctors and scientists through the various media.

Drug Use as a Receiver Variable and Its Relation to Credibility of the Communicator

Student drug users have a different view of credibility than non-users. Among Haldimand County students, for example, (Smart and Fejer, 1972) users of marihuana, opiates, LSD, and other hallucinogens most often trusted, and viewed as most expert, other drug users; non-users of these drugs trusted doctors and scientists. In the Timmins study, (Annis, Klug, and Blackwell, 1971) drug users trusted "other kids" more than scientists and doctors, the trusted source for non-users, but it was not specified whether those "other kids" were drug users.

Adult marihuana users differ from student drug users in the sources they trust and view as most expert. (Smart and Fejer, 1971d). Like adults who had not used marihuana, the users chose medical doctors and research scientists as most trustworthy and expert about drugs. Adult marihuana users more frequently gave people who used drugs (and had either quit or were still using them) as their most trusted source than did non-users. However, drug users were not their first choice.

Marihuana using adults, like non-users, would also trust doctors and scientists for their information on abortion.

There could be several reasons for the large difference between student drug users and non-users in the credibility they attribute to various sources. Hovland, Janis, and Kelley (1953) suggest that perceived expertness is influenced by a number of factors including the similarity in values between audience and communicator, and attempts to manipulate the listener.

Kohn and Mercer (1971) found that users of illicit drugs hold attitudes favorable to drug use, while most scientists and doctors probably are seen as being anti, and may even be considered by some illicit drug users as manipulating them into changing their behavior. This would reduce their trust as well as their perception of them as experts. Drug using communicators would be viewed as having similar attitudes to illicit drug users but with no obvious intentions to manipulate the audience; on the other hand, students who have not used drugs may be seen as having attitudes similar to doctors and scientists and different from those of drug users.

The reason for the difference between student and adult drug users is not clear. However, adult marihuana users perhaps really do not identify themselves with other drug users, possibly tending to view scientists and doctors as most trusted and expert in many fields, and to particularize this to drug information.

Grade Level as a Receiver Factor and its Relation to the Credibility of the Source

Only one investigation has been made of credibility and grade level: Pascale and Streit (1972) asked 200 students from each of a junior high school, senior high school and four year college whom they would listen to for advice on the use and abuse of drugs. Choices included parents, law enforcement officials, teachers, clergy, siblings, friends or drug users.

College and senior high school students were similar to each other in many respects, and different from junior high school students who most often said they would listen to parents for advice and would least often listen to friends or drug users; on the other hand, college and senior high school students said they would most often listen to drug users and least often to the clergy—and also endorsed friends more than the junior high school students did.

These results are compatible with Smart's (1971) regarding age and most used source, and suggest that students turn away from family and authoritarian sources and toward peers and other external sources as they grow older. Pascale and Streit (1972) suggested that their findings have practical implications for drug education especially when speakers or discussion leaders are to be used. For example, an ex-addict may be useful for introducing a course to senior high or college students. Also, at this level it appears that peer oriented and peer organized methods would be indicated. Conversely, more authoritarian type sources such as teachers and clergy may be of value in junior high and primary schools.

Questionnaire Studies of the Perceived Effectiveness Of Sources as Agents of Prevention

Martin and O'Rourke (1972) asked students at the University of Nebraska to rank the effectivenes of selected sources in preventing or stopping drug use. They found two distinct groups of sources: first, the clergy, lawyers, judges, law enforcement officials, teachers and parents who were ranked below average in effectiveness; the second group, rated above average, consisted of scientists, researchers, doctors, health professionals, former users, and friends.

In Toronto, students were asked about the sources that helped them decide whether marihuana was safe or harmful (Smart, and Jackson, 1969). As expected, the results depended on use or non use of that drug. In general, students who felt that marihuana was harmful believed the news media had contributed most to this decision and most such students were non-users. Many users felt marihuana was safe, and they attributed this belief to their own experiences with the drug, or to contacts with friends. Few drug users reported being influenced by the media, church and school or the family in deciding marihuana was safe.

These studies confirm the effectiveness of the mass media as a general source, and doctors and scientists, as well as possibly drug users, as communicators. They also suggest that all these sources may have the strongest influence when the image is a negative "do not use" one.

Experimental Studies: Varying Communicator Characteristics

There is considerable difficulty in determining the particular factor responsible for this difference in credibility. It could be that doctors are perceived as high status, knowledgeable experts but it is also likely that they give different messages than other sources. Smart (1972a) attempted to investigate the effects of two different communicators while holding the message constant.

The subjects in the experiment were 156 second and third year university students who were given a written message about the use of marihuana as moderately high in danger or threat appeal. Every second student was given a written introduction that this passage was written by "a young person who had tried drugs and had very extensive contact with drug users and the current drug use scene." The remaining students received an introduction indicating that the passage was written by "a young student who had never tried any drugs but hopes to make a career writing about drugs." Students rated the passage on its fairness, accuracy, and the credibility of the author—and were also asked about their own marihuana and hashish use.

Students who had not used marihuana or hashish did not differ in their rejection of the drug user as the communicator or the non-using writer. Marihuana users rejected both the drug user and the non-user writer more than did students who had not used marihuana. However, they rejected the non-using writer the most. The greater rejection of the passage by marihuana users may have been related to its content which tended to stress the dangers of marihuana use.

Some experiments (e.g. Berscheid, 1966) have found that a communicator similar to his audience in relevant characteristics has greater influence than a dissimilar communicator. Marihuana users here tended to reject the communication less if it was written by another drug user despite its high level of threat.

Panzica (1973) conducted a type of experiment similar to Smart's (1972a) among 266 grade 7 and 8 students. Here the drug use of the speaker, described as a 38 year old man who had worked with drug abusers, was varied. The information on whether the speaker had used drugs was in printed form and given to the students after they had heard him in the auditorium. Unfortunately, three assemblies were given by the speaker and because they allowed for open discussion there was limited control of their content.

Students were asked to rate the speaker' knowledge of the subject, ability to communicate, and understanding of young people. No significant differences were found in the average ratings between students receiving instructions that the speaker "has been on drugs" or "has used none." In this experiment the students were not asked about their own drug use.

Smart (1972a) and Panzica (1973) have found that for a general audience or a non-using audience whether the speaker has used drugs makes little difference to his perceived credibility. However, more experiments varying source variables such as age, status, occupation, and familiarity with the student group, need to be studied in relation to drug education. Smart's (1972a) study does point out that drug users will tend to reject a straight communicator of similar status more than a drug-oriented communicator.

Experimental Studies Varying the Message and Their Relationship to Audience Characteristics and Source Credibility

Another experimental study (Smart and Fejer, 1971b) manipulated the threat of fear arousal in the message but held the communicator constant. As mentioned earlier, fear appeals or "scare tactics" have fallen into unjustified disfavor; few studies have attempted systematically to assess their effect on drug use behavior and attitudes.

Smart and Fejer (1971b) made one of the few studies of high and low fear messages about drugs. In the first part of that study passages on marihuana use varying in the degree to which they stressed the probable dangers of such behavior were given to 2,218 high school students. One quarter of the students received a low fear passage which did not attribute any serious physiological or psychological consequences to marihuana use; another quarter received a medium fear passage attributing some moderately severe consequences to marihuana use; the third quarter received a passage where several severe psychological and physiological disorders were associated with marihuana use, and the final quarter received no passage. Passages were alternated within each class. After reading the passage students were asked about their future intentions towards marihuana and about their use of the drug during the previous six months. No effect of fear levels in various messages was found.

A number of studies (e.g. Janis and Feshbach, 1953; Goldstein, 1959) have found that the student anxiety level may interact with threat appeals so that subjects with high anxiety were less influenced by high fear appeals than those low in anxiety. However, this relationship has not always been replicated (Niles, 1964; Singer, 1965).

The Smart and Fejer study included a 14-item anxiety scale developed by Buss (1955), and Hoyt and Magoon (1954).

There were few differences in the persuasive effect of the various marihuana messages or no message at all. The data results suggested that for non-marihuana users the medium fear condition was least effective, and, for users, the no message and fear appeals were least effective. However, differences were very small and only of borderline significance. No relationship was found between anxiety level and effectiveness of the various fear appeals.

We suggest that one of the reasons for the failure to find a relationship between fear level and future intent to use marihuana is that the messages were not different enough from each other. Much of earlier attitude change research has been done with topics to which less publicity has been given and which have lower salience with the students many of whom may already have confirmed attitudes towards marihuana which cannot be changed by one short message.

A second study (Fejer and Smart, 1974) gave high and low fear messages about a non-existent drug—"MOT"—on the basis that students would have fewer rigid attitudes about a new drug than about an older one. Striking differences were found in that students receiving the high fear message were much less likely to volunteer for an experiment using the drug, and were more likely to be concerned if their friends were using it. They also favored legal controls on its distribution.

The scope of these studies was quite small, concerning only the use of marihuana and "MOT". Fear appeals may be ineffective for marihuana use but more effective for newer or less well-known drugs. However, studies are needed on other drugs including LSD, speed, opiates and alcohol—even on more non-existent drugs. In this latter case, should certain types of appeals appear more effective than others, such methods could be used when new drugs with abuse potential come on the market.

Moan and Flick (1968) used either a supportive or refutative discourse following a threat-inducing film to study the effects of varying messages about smoking on a communicator's credibility. They did not find an overall effect of type of communication or communicator credibility but rather an interaction with attitude change. For the group receiving the refutative communication there was a significant relationship between communicator credibility and the magnitude of change in negative attitudes, but not for those receiving the supportive communication. Moan and Flick concluded that the type of communication and the credibility of the communicator have a complex interaction in their effects upon attitudes toward smoking. There is, of course, a need to repeat this study for drug use attitudes although it has an obvious relevance.

Research Relating to Channel Variables in Drug Education Exposure

Literature shows that, among general audiences, the mass media are the most used source of drug information and they provide a much greater exposure than other sources. Smart and Krakowski (1973) investigated the exposure given to drug advertising and information in television and to editorial content only in popular magazines—to determine the amount of material about drugs, the type of information (i.e. pro or anti drug), the types of drugs involved, the probable audience, and the accuracy of the information.

The drug information content (excluding advertisements) in 13 of the most widely circulated magazines in Canada was surveyed, and these included six family magazines whose readership was primarily among housewives; the others dealt with general news and public affairs and would have primarily an adult rather than an adolescent audience.

Surveying all 400 published issues between January 1970 and May 1971, the authors found 80 articles relating to drug use. Of these, 26 dealt with marihuana, 11 with heroin, seven with alcohol, four with tobacco, and 32 with multiple drug use. Almost all articles concerning general multiple drug use dealt with adolescent rather than adult use.

The section of the study concerning drug content on TV included both drug use in program content, and drug advertising. Each of six stations received in Toronto was monitored between 4 p.m. and midnight (the peak viewing period) one day each week for seven weeks. By randomly selecting the days, each station was watched once for every day of the week.

There were 295 drug advertisements in the 336 hours of television viewed; most occurred between 7 and 11 p.m. and accounted for four percent of all commercials shown. Forty-three percent of the ads were for alcohol, 10 percent for tobacco, and 47 percent for such other drugs as headache remedies, stomach and cold aids, sedatives and vitamins. Among these latter drugs by far the most popular were headache remedies (45 percent of "other drug" category). Only three items appeared during this period in news broadcasts relating to possible harmful effects of drugs. One dramatic program portrayed heavy drinking, but did not criticize it. Only one special 30 minute program in the sample dealt exclusively with drugs, and 13 anti-drug commercials divided between alcohol and illicit drugs were shown.

The authors concluded that the contribution of these media to drug education is slight, although magazines give more coverage to preventive information than television does. In light of previous studies showing that people derive most of their information from mass media one wonders just how minimal the exposure to drug information from sources other than these media must be.

Selective Exposure

Smart (1972b) studied selective exposure to information about the harmful effects of marihuana among marihuana users and non-users, and the harmful effects of tranquillizers among users and non-users, employing a method similar to Brock's (1965). The university and adult students surveyed were given a list of 10 magazine titles and asked to rank them according to their preferences. For those in the marihuana group two of the 10 articles were on the harmful effects of marihuana; the tranquillizer group also received two out of 10 articles on the harmful effects of tranquillizers. At the same time, both groups were informed that they would read the articles they most preferred. Following the ranking of titles came questions on personal use of marihuana or tranquillizers, and attitudes towards the harmfulness and liability to dependence of either drug.

There was no evidence of selective exposure for marihuana users, tranquillizer users or non-users; nor was there any difference between light, moderate, and heavy users of these drugs. Those who thought marihuana was harmful or dependence producing were less likely to prefer articles on these topics than those having the opposite attitudes, while the reverse was found for those viewing tranquillizers as harmful. Degree of commitment in terms of either personal drug use or attitudes was not related to selectivity in exposing oneself to information on these drugs.

Components In the Destination of Drug Education

Since many programs try to change drug use behavior by instilling negative attitudes or increasing knowledge levels, it is important to know just how attitudes and knowledge affect drug use.

Swisher, Crawford, Goldstein and Yura (1971) investigated relationships between attitudes towards drugs, knowledge about drugs, and marihuana use among a large sample of high school and university students in the United States. They found that the more knowledge a student had about drugs the more liberal were his attitudes. Marihuana users had higher knowledge scores than non-users and also much more liberal attitudes. From these data Swisher *et al* suggested that knowledge alone was probably not a deterrent to drug use.

Two studies by Fejer and Smart (1972; 1973) found similar results. The first was conducted among 1,611 high school students in Orangeville and Shelburne, Ontario, measuring attitudes on an 11 item scale of favorability-unfavorability toward legalization of marihuana. In addition to questions on attitudes, knowledge and marihuana use they included a question on intent to use marihuana in the future (for non-users). Like Swisher *et al* they found a close positive association between marihuana use, attitudes towards its legalization, and knowledge about drugs.

Comparing users and non-users does not determine whether the users' additional knowledge occurred prior to or after drug use, but some suggestion as to the temporal relationship is provided when knowledge among those stating they intend to use marihuana (but have not so far) is compared with that of users and those definitely not intending to use it. Intending marihuana users have fact scores higher than non-users who do not intend to use it, but lower than users. So students with intentions to use acquire additional information prior to drug use, but this learning process appears to continue after use has begun.

Fejer and Smart (1973) conducted their second study among 4,693 high school students in Metropolitan Toronto, and this one included attitude items on a variety of drugs including marihuana, opiates, hallucinogens and stimulants, and the knowledge items used in the Orangeville/Shelburne study showing the highest correlation with total score. The items were adapted from a larger scale devised by Mullin (1970).

Both attitudes and knowledge about drugs tended to vary with a number of social, demographic, and academic characteristics: males tended to have slightly more liberal attitudes towards drugs than females, and also tended to know more about drugs. Between grades 9 and 13, attitudes became more liberal, and knowledge scores also increased. Students getting high grades (75 or more) in school knew more about drugs than those with grades below 50, but students with high grades took a less permissive view of drugs than those with lower grades.

Braxton and Yonker (1973) also found that knowledge level varies with a number of social and demographic characteristics, particularly size of city, grade level, race, and socio-economic status. Students in larger cities, in higher grades (although relationship with grade was not linear), white, and of higher socio-economic status had higher scores than those from small urban areas, with low grades, black, and from poorer socio-economic backgrounds.

The variation among students with different social or demographic characteristics was never as large, however, as the difference between drug users and non-users. Users of each of the 13 drugs were much more permissive toward drug use than non-users; except for users of glue and solvents they also tended to have much higher knowledge scores.

The study by Smart and Fejer (1973) found that illicit drug users had the lowest attitude scores of all drug users: the mean attitude score among opiate users, for example, was 37.3 compared to 54.6 for non-users of opiates, and users of speed, LSD and other hallucinogens had similar mean attitude scores. Knowledge scores were also exceptionally high for users of each of these four drugs, and for marihuana users. The mean knowledge scores for users of opiates, LSD, speed, and other hallucinogens ranged from 7.0 to 7.8 compared to a range of 4.7 to 5.3 for non-users of these drugs.

Knowledge about drugs, and attitudes towards them, were closely related with almost half the students with permissive attitudes having high knowledge scores compared to only about one quarter of those with non-permissive attitudes. It would appear difficult to influence the students' attitudes without in some way changing their knowledge level and vice versa.

Drug education programs which aim to change students' knowledge levels will probably have some effects on attitudes, too, although these may not be the changes the program organizer wants. While studies of this topic suggest that increased knowledge may result in more rather than less permissive attitudes toward drugs, specially designed programs allowing manipulation and study of these variables and the changes they produce in drug use are needed to verify this assumption.

Grant's 1971 study does not show quite the same relationship as the ones previously mentioned. He investigated the relationship among knowledge, attitudes toward drugs, and drug experience in a small group (N =48) of students in the United States defining drug users as "suspect marihuana users" on the basis of liberal attitudes toward marihuana and willingness to socialize with drug users. He found that "suspect marihuana users" had a distribution of drug knowledge scores similar to the group as a whole.

A California study (State Department of Education, 1970) of 18 school districts found a curvilinear relationship between knowledge scores and drug use. Drug users had scores in the middle range while non-users fell into the extremes of either high or low scores.

While the Grant and California studies do not show that drug users know more about drugs than non-users they certainly indicate that drug users are as informed as most students are and that this knowledge has not deterred them from drug use. They further support the need to find out what influence increasing the knowledge level of students has on their attitude and drug use.

SUMMARY AND CONCLUSIONS

Certain sources, particularly the mass media and scientists and doctors, should be given additional attention in drug education for student and adult audiences because they appear to be used frequently and to have considerable credibility; in fact, the use of scientists and doctors through the various media merits special study.

Teachers in the schools probably will have to undergo considerable training to be effective communicators in drug education.

Drug use on the part of the communicator does not appear to bear a clear relationship to his credibility or effectiveness for either general audiences or drug users.

Of particular importance among younger (high school age) audiences is the difference in response to various sources by drug users and non-users. Conventional or authoritative sources appear to have little impact on drug users who turn more to their own experience or to friends for their information. Perhaps when program organizers are aware that a large proportion of their audience is composed of drug users they should consider less conventional approaches such as peer oriented programs.

Despite the use of the various media for information gathering by both students and adults, two forms of these media—magazines and television—have not recently done much in this area, which suggests that only minimal information is provided by other sources such as doctors, scientists, schools and families.

Little information on the most effective type of drug education message is currently available, and our knowledge of fear appeals seems very incomplete and inconclusive. Moreover, there is no clear indication of selective exposure among drug users to information relating to the harmfulness of certain drugs.

Many drug education programs aim at informing students about drugs—increasing the knowledge level. The studies on the relationship between knowledge, attitudes, and drug use suggest that purely factual drug education programs may not have desirable effects on attitudes or behavior. Studies are needed of programs which increase information levels in order to determine their effects on attitudes and behavior.

4 UNEVALUATED DRUG EDUCATION PROGRAMS FOR TEACHERS AND STUDENTS

In reviewing the recent drug education programs and guidelines for programs designed for students, an exhaustive catalogue is beyond our scope but we hope to provide examples of all types of programs even though none of these has received any controlled evaluation or comparison against a no-education group.

Unfortunately, many programs described in this chapter do not allow a detailed analysis of communication variables, since their concern is with a general plan, and it is usually impossible to determine what receiver, channel or destination factors went into it. From our experience, it is difficult if not impossible to specify whether the program is using "scare tactics", for example; likewise, it is hard to see exactly who the receivers are to be, other than "young people" or high school students in general. Moreover, destination variables such as length of intended effects, and actual behaviors to be affected, are rarely specified.

Of particular interest here is the source of the information since it is so often specified. And, while audience characteristics, or receiver variables, should also be of great importance, most of the programs we will be discussing are for "general" student audiences. The only receiver variable usually stated is age or grade level, although many programs are for "students in general". Among destination variables, the goals and rationales of the programs are of interest but they are rarely explicitly stated. Almost all programs use face-to-face communication as their primary channel, although movies, books and pamphlets may play a part. Most programs represent a mixed channel approach rather than anything else. In this chapter, we will differentiate programs primarily on the basis of their source, essentially because of the difficulties of proceeding with an information processing analysis.

Most current programs could be described, using Richards (1970) terminology, as "cognitive" or "conceptually oriented". Their main aim being to present factual information in a convincing manner. Most of the five major types of programs are planned for classroom presentation by the teacher:

1. Programs designed for classroom presentation with the teacher as the major source; in this group we will include the numerous curriculum guides.

2. Programs relying on experts outside of the school for all or part of their content; these may include panel presentations or debates among doctors, pharmacologists, professors, lawyers or police officers, etc. This category also include ex-addicts who are used as "experts" even though much of their value may stem from their personal history.

3. Approaches in which the students take an active role in the organization and conduct of the course.

4. The Ombudsman approach, using a counsellor with whom the students hold informal discussions on a private and voluntary basis.

5. Novelty programs outside the above traditional approaches, and including one day exhibitions, plays, etc.

Several programs included in this chapter (e.g., Aubrey, 1971a; Dovner, 1970; Drysdale, 1971; Rakstis, 1969; and Veselak, Adamo, Morgenstein and Strogin, 1971) have been used outside the formal education system.

The State Education Department Regents of the State of New York, (1971) have designed community drug education programs which include in their audiences teachers, parents and government officials, as well as students; generally, these programs include plans for counselling and emergency services to deal with drug use problems. Resources within the community such as doctors, police officers, and government officials may play a major role in both the preventive and treatment aspects.

Since this chapter does not by any means include all drug education programs it is valuable to note some reviews available to the reader: the National Clearing House for Drug Abuse Information keeps an up-to-date description of all federally funded programs in each state; Cahill, Clarke and Reusing (1971) give additional information of U.S. federally funded programs, and several state agencies such as the Addiction Services Agency of New York (Macro Systems, 1972a) have published inventories of drug education programs. Torrance, (1972) gives a brief description of types of programs used in Canada, and several authors (e.g. Grant, 1972; Richards, 1970; Jones (undated);

Bedworth, 1972; Levy, 1971) give descriptions of the types of programs in use in the schools. Dorn (1972) has published a review of drug education programs in England which includes a survey of teachers' views concerning drug education efforts.

Teacher Training Programs

Despite the problems of using teachers in drug education, efforts have been made to provide specialist training for teachers. Many authors have suggested the topics which should be emphasized by these programs. For example, Rifkin (1971) suggests that teachers should be instructed in factual information regarding all types of drugs and be encouraged to discuss controversial issues. Richards and Langer (1969) state that training courses for teachers should emphasize attitude and value development, ways to adjust to local situations, the reasons for drug use, and appealing alternatives to drug use. Others like Aubrey (1971b) stress that teachers need training in communication skills and the development of a relaxed posture in inter-personal relationships with students. Almost all programs assume the teacher will need a firm foundation of factual information on pharmacology, legal aspects of drug use and motivation for use.

Workshop Programs to Increase Knowledge Levels

By far the most common type of program for teachers is the intensive workshop which attempts to increase teachers' knowledge levels about drugs and their ability to communicate on the issues. Among others, Feinglass (1972) has described how to plan a drug education workshop. Essentially this description includes most of the factors involved in the majority of teacher training workshops. The basic objectives involve increasing the knowledge level of teachers concerning drugs, the youthful subculture, personality and social problems relating to drug use, and increasing their ability to evaluate the literature. As well, stress is placed on developing the abilities of teachers to communicate with students and encourage wise decision-making. Curriculum planning also plays an important part and there are many examples of program plans emphasizing these types of objectives (e.g. Berty, 1970: Project Awareness; Swanson, 1971; Einsten, Lavenhar, Wolfson, Louria, Quinones and McAteer, 1971; Gallatin Council, 1972; Weinswig and Doerr, 1968; Kitteredge, 1971).

Swanson (1971), Einstein *et al* (1971), and Morelli (1971) describe large scale statewide programs in the U.S. where there are a number of national centres conducting such workshops (see Swanson, 1971 and Editorial, 1970) with the intention of training selected teachers and administrators who then return to their own communities and train other teachers.

Some programs (e.g. Mackell, Patti, and Zimmering, 1969) require teachers to design a major project—a curriculum guide, faculty workshop program, or lecture series, for example—which can later be evaluated by the training staff.

Most workshop programs are intensive and short—from a few hours to one or two weeks; in a few cases they may be held weekly over a continuing period. The longer ones (e.g., Awareness House; Mackell, Patti and Zimmering, 1969; Gallatin Council, 1972; Kitteredge, 1971) offer graduate credits, and their format generally involves a series of guest speakers, experts in their fields, as well as extensive small group discussions with discussion-leaders.

Novel Programs

Fortunately, some training programs depart strikingly from the traditional. Poliakoff (1971), for example, designed one to make teachers comfortable in classroom discussion by presenting plays about alcohol and drug abuse to audiences of teachers and students who then discussed them as a group. Poliakoff's intent was that, through open discussion, attitude differences between teachers and students would be aired, and teachers would develop skills in communicating with the students. The teachers also underwent sensitivity training to help them deal with their own feelings and prejudices.

Bedworth and D'Elia (1971) proposed a "solution oriented" teacher training program because teachers already understand more or less how children acquire basic knowledge about drugs. The aims of this approach were: to identify and understand the drug problem; to determine methods of solving that problem within the community, and to learn evaluative techniques. In other words, the solution oriented approach emphasized methods of applying the solution arrived at to drug abuse in the community.

One state college program (Edwards, 1972b) involved a two-week full-time internship working with addicts, and, while such intensive training is rare, some programs do include tours of drug rehabilitation centres.

In general most teacher programs follow a traditional course type model with lecture series and discussion groups. To varying degrees they try to aid teachers in developing skills in communication with their students and training in encouraging responsible decision making about drug use. What remains to be seen however, is whether these courses do develop teachers who are experts in the field of drug use and increase their credibility with students. Especially important is whether they are perceived as experts by the students for whom they will be the source of drug education programs.

At first glance, doubts arise that teachers trained in a two day or two week program will have the same credibility as a physician or a scientist working in the field of drugs; however, such teachers probably have more credibility than those who have had no training at all—they also have an extensive knowledge of students, and of the educational process.

The Teacher as the Source of Drug Information

Cognitive or conceptually oriented programs in which the teacher plays the role of organizer and provider of information to students are the most commonly used. Perhaps this is because they most closely resemble the methodology used in teaching other school subjects, involving primarily the presentation of factual material with the hope that students will incorporate the knowledge and concepts into their decision-making about drugs. The most common type of program with the teacher as the source is the *curriculum guide*, large numbers of which have been prepared by Canadian and American government agencies as well as by school boards, private associations, and industry. Although their content and suggested methods vary considerably, there are several basic similarities.

Curriculum guides are designed for classroom use under the supervision of a teacher. While some of them do suggest that modifications are desirable to suit local or community needs, they basically are intended for students in an entire province, state or county; most are divided into age or grade level units, and the teacher is provided with the concepts to be presented within each unit as well as factual information and bibliographies for each topic. Guidelines are given for each grade (i.e. kindergarten through 12) running consecutively.

Caliguri (1972), in his analysis of curriculum guides, pointed out that the structural parts include a rationale, concepts, content, techniques and "appended" material; in other words, they provide most of the material a teacher would require for a traditional, factually oriented program. Generally, information on pharmacology, physical and psychological effects, legal status and social implications of using a variety of drugs comprise the major content.

While few people have made general suggestions about curriculum guides, Taylor (1972) proposed that drug education programs should begin at an early age when customs, attitudes and opinions are still being molded, and indeed most curriculum guides do provide instructions beginning at kindergarten. Taylor also suggests that guides should consider community needs which can be determined by survey methods, and that curricula should have clearly defined objectives, and teachers should have extensive training.

Several of Taylor's proposals are not regularly included in curriculum guides: he advises, for instance, that students' suggestions should be incorporated into the program, and that the program should not be compulsory; he urges that that groups be small—no more than 15—and says that drug education should not be confined to physical education classes but should be more interdisciplinary. He also advises that a well-defined guidance program be initiated to assist present and potential users. As well, teachers' instructions can be supplemented by specialists. All programs are to have pre and post evaluations.

One curriculum guide which has received considerable attention and publicity is *Teaching About Drugs, A Curriculum Guide K-12 (Second Edition)* published in 1971 by the American School Health Association and the Pharmaceutical Manufacturers Association. It claims "to present the facts in a manner designed to develop appreciation for the benefits of drugs and a healthy respect for their beneficial or harmful potential", and uses eight basic concepts:

1. Drugs, in legal products, are medical tools that may have many benefits when properly used.
2. Drugs and other substances are used for many reasons.
3. Drugs and other substances, if misused, may be harmful.
4. Drugs may be classified according to their effects.
5. Production, distribution and use of drugs are controlled by law.
6. Behavior patterns of the individual influence present and future health.
7. Individual acceptance of responsibility is essential to the wise use of drugs.
8. Health is the result of the interaction of physical with intellectual, emotional and social areas of human development.

The ASHA/PMA guide is divided into four main sections based on age—the lower elementary years, the middle elementary years, the early adolescent years, and the late adolescent years. Each contains general instructions, a list of objectives, content to be included under each objective, learning activities and additional resource material; in general, differences between sections have to do with the simplicity or complexity of the concepts and the types of drugs discussed.

Additional articles on epidemiology, effects of drugs, history of drug use, as well as a glossary, are provided for the teacher's benefit. This curriculum guide, then, includes not only suggestions or guidelines but also a comprehensive course for the teachers.

A second, widely-used curriculum guide is *A Teacher's Resource*

Guide for Drug Use and Abuse for Michigan's Schools, produced by the Department of Education in that state, in 1970. Its aim is to help pupils make intelligent decisions about drug use, and it gives more attention then the ASHA/PMA one to educating the teacher—covering such topics as reasons for youthful drug use, types of drug abuse, effects of abuse, and legal aspects. Suggestions for additional reading are given with each section. The guide urges the teacher and other members of the community to get involved in the actual planning of the program, and lists 23 "do's and don'ts" for the teacher in an effort to simplify the methods to use or avoid. For example, one is advised to avoid "scare tactics", to have youth realize that many over-the-counter drugs are hazardous, and so on.

In the Michigan guide the teacher is given guidelines for planning a curriculum at different age levels (i.e. primary grades, upper elementary grades, junior high or middle school, and senior high). The program is designed to be worked into various classes within the school's existing daily curriculum, with biological and physiological effects of drugs worked into biology classes, for example, and motivational aspects of drug use into sociology or psychology classes. A list of suggested learning activities, such as student research projects, is also provided, and movies, pamphlets, and other audiovisual aids are suggested with instructions on where they can be obtained.

A third guide, published by the Bureau of Narcotics and Dangerous Drugs of the U.S. Department of Justice (1970), is entitled *Guidelines for Drug Abuse Prevention Education.* It suggests that information on drugs should be included in regular school subjects such as science, health, etc., rather than as an independent course; its aim is to help teachers impart information so that students can make sensible decisions about drug use. Unlike the first two guides this one does suggest a variety of methods for presenting drug education programs. Sample courses of study are included for four grade levels, and teachers are provided with a greater variety of material from which they may organize their own programs.

The Toronto Board of Education (1969) and the Metropolitan Toronto Separate School Board (1972) have also designed curriculum guides for the classroom. The Board of Education's program aims to provide students with: a) an opportunity to seek answers to their questions from an understanding, knowledgeable adult; b) a "protective education" which will help them develop, evaluate and clarify their own knowledge, values and opinions so that they may give responsible and meaningful direction to their lives. In general, the concepts provided do not differ from those in other guides, although there are only three divisions of the guide—junior and senior public school, and high school.

Resource material and suggested student activities are provided.

While the Separate School Board's *Interim Curriculum Guidelines* (1972), designed for students aged 11 to 14, does not differ greatly from other guides, it is intended to be presented within the value context of the Board's "Programs in Christian Living" which includes the concepts of God, love, life, family and friends. This frame of reference is particularly involved in the section presenting alternatives to drug use.

The Stamford Curriculum Guide for Drug Abuse Education (Stamford Public Schools and Stamford Board of Education, 1971) has a slightly different rationale from other guides, although it still uses a cognitive or conceptual model. It is referred to by its originators as a behavioral approach to drug education, and essentially its rationale is that drug education should be related to life experiences, attitudes and values and should be discussed in relation to other psychological and social problems. In this sense, it has a slightly broader range than some of the other guides, and it, too, presents units for each grade level from 4 to senior high school.

There are many other guides and program plans with formats similar to those we have listed—(e.g. Christian, 1967; Kitzinger and Hill, 1967; Thompson, 1969; Los Angeles City Schools Division of Instructional and Planning Services, 1970; Cornacchia, Bentel and Smith, 1973; Daniels, 1970; Snodgress, 1968; Harnett, 1971). Edwards (1972a) places slightly more emphasis on small group activities and discussions in his guide, *Reaching Out: The Prevention of Drug Abuse Through Increased Human Interaction*, and includes such innovative methods as role-playing, role simulation and attitude confrontation. In general, however, these latter methods would require a great deal of teacher training since they call for skills which most teachers simply do not have.

While all of these guides contain a large body of factual information on pharmacology, drug classification, effects, etc., they vary in the stress placed on attitude and value development, and discussion of personal and social problems. However, a few of them (e.g. Mikeal and Smith 1970) state that presenting factual material should be the only objective of school drug education courses. Mikeal and Smith also advocate that a clinical pharmacology course be taught to elementary and secondary school students, and they suggest that this type of orientation is available in the School Health Education Study (1967), *Health Education: A Conceptual Approach to Curriculum Design*, and point out that schools are places of learning, and value judgments and manipulation of attitudes constitute socialization not learning.

Since curriculum guides rely on the teacher as the source they are plagued by problems of teacher credibility. Although some guides suggest that teachers should have prior training, many include reference material designed for teachers who do not have this training; thus, while the curriculum guide does have considerable benefits especially for the untrained teachers, its usefulness will depend to a great extent on teacher credibility.

Numerous articles for teachers and school administrators suggest concepts that should be stressed, aspects of presentation which may be helpful, and various methodological approaches. These concepts range from giving "the facts as they are known" and nothing else (Spratto, 1970) to advising that "providing information about drugs is actually the least important aspect of drug education" (Piorkowski, 1973). Some instruct the teacher on how to think about drugs (e.g. Huberty, 1972); what to include and leave out (Bland, 1969, Larsen, 1970); and how to conduct a program (Wiener, 1971b; Wold, 1972; Nowlis, 1969; Pearson, 1971; Brown, 1970; Richards and Langer, 1969). These and other articles of the type contain useful ideas for the teacher; however, most have undergone no testing procedures and so it is impossible to determine their merits.

Some programs to be directed by teachers are basically conceptual in nature but have an innovative methodology. One such program was presented to elementary school students (grades 5 to 7) in Vancouver, British Columbia (Barty, Bethell and Bellward, 1973), and was designed to demonstrate the effects of foreign chemicals on biological processes. Students were involved in planning and conducting scientific experiments to determine these effects. The program was a progression of units through the grade levels starting with gross effects of foreign chemicals on plant life and progressing to effects on animals. Background research was conducted and informal discussions held, and the program evaluated by before and after questionnaires; however, little information on the results was provided. This type of program certainly appears to be an interesting learning technique although one can only speculate on its effects on attitudes and actual drug use.

Cassell (1971) developed an essentially factual Programmed Learning Unit, which he calls "Pludrug", for use in the classroom or for teacher training. It follows Skinner's design of programmed learning, with eight units of factual information on such topics as the nature and classes of dangerous drugs, stages and types of drug addiction, etc. being presented and then followed by questions which focus on the important aspects of the presentation. The rationale for this program is that "an informed person, with pertinent information, is more likely to make decisions in important areas of life in support of his own goals than an uninformed one". The text includes a large body of information on many aspects of drug use, and the teacher actually need know nothing about drugs to conduct the course. A drug IQ test is also included to evaluate the program.

The extent to which Cassell's program is effective depends perhaps on how great a role factual information plays in decision making about drug use. It would be helpful to see reports on the program after it has been implemented, however at present no applications of it have been made.

Another program which is considerably different from the majority is *Drug Decision* produced by Lockheed Education Systems (1969), and whose aim is "to create in the student an understanding and awareness of the problems and effects of drug abuse by increasing his cognitive store of knowledge about drugs and their uses, and then permitting the student to manipulate and explore this cognitive information in a simulated real-life environment".

The first phase of the course involves multimedia presentation of information concerning drugs and disaster-oriented situations which the student is taught to deal with by means of a disaster management model. In later phases the student is trained to become a drug control officer in a simulated disaster control centre. He must then respond to the drug problems presented by his environment via the showing of drug education movies. In later phases he is placed in different roles such as a law enforcement officer, or a member of a board responsible for institutionalized addicts. The main program principle is that many small decisions made within this simulation framework will lead to cognitive growth and attitude changes. Unlike the previous guides this program is a nongraded course which can be applied at a number of age-levels. Teachers are given step-by-step instructions on how to progress through the course and students are provided with work manuals.

As well as providing factual information this course does have a large attitudinal component. Illicit drug use is seen as a disaster and students are trained through role playing to manage it as one manages floods or fires. The program certainly allows for active student involvement and it would be interesting to know about its effects on attitudes towards drugs as well as actual drug use.

Another program plan devised by Evans (1971) also involves role models although in a somewhat different way. Evans believes that certain subgroups of the population are more important than others in shaping attitudes and behavior, and should be selected out so that educators can work with them in setting up the goals of a drug education program. Evans also suggests that it may be possible to create "role models" whom adolescents will look up to, although he concedes that this would be slow and difficult.

Evans describes what he calls a 'drag strip' model in which students are taught that if they want to use drugs they should do so in a controlled environment. This means that there would be small groups with social control over behavior, preferably with a specialized person in charge. Chemicals would have quality and quantity control so that careless drug use practices could be avoided.

Many of curriculum guides and program suggestions we have examined advise that specialists be used for certain topics, but in a role secondary to that of the teachers. After reviewing state health curriculum guides and health texts from 11 states, Smith, Mikeal and Taylor (1969) concluded that many of these stressed negative aspects of drug use and generally were not well-balanced; until better conceptual models are developed, they suggest that outside speakers or "experts" be used.

The first problem involved in the use of traditional experts for drug education is availability: doctors and scientists are sometimes difficult to involve initially, and securing their services for long-term programs is almost impossible; thus, programs relying on such personnel are usually short—often only a few hours. Also, it is often necessary to hold panel discussions or lecture series with large student assemblies when experts are used, and this makes it difficult to hold adequate question and answer sessions.

One method of providing experts is to have trained personnel whose major function is to travel from school to school. Panzica (1972) has described a "travelling" method to inform some 300,000 Canadian students from grade 6 upwards about drugs, using the acronym COST. The speaker should be *conventional-minded*—better informed than the students, and conventional in appearance; he should be *open-minded*—keeping up interest, not just presenting the facts; he should stress the *sensible* approach to drug use—in other words, "what's it worth?"; finally, he should use a *thoughtful,* problem-solving approach.

Generally, COST programs involve a brief one or two hour address, but in some cases may continue for several days. Question periods follow each address, and audiences may range from a small group of 25 or so to 700 people. Evaluations and follow-up inquiries are made but usually on a rather informal basis, and from several communities these appear to have been favorable. One resort community, for example, felt it had less trouble with drug use after Panzica's appearance than in previous years; however, without a controlled study it is difficult to link the favorable changes reported with the speaker's presentation.

Johnson (1968) reported a California program which relied heavily on the use of experts and involved two day seminars which included films and panel and group discussions. The panel sessions took place in front of two large assemblies of students divided by grade level, who were then shown a film on narcotics use. Nowalk (1969) and Marx (1968) conducted programs very similar to Johnson's.

Medical and pharmacy students are accessible resource people, usually with considerable expertise in the field of drug use, and, because they are often young, the high school student may be able to identify more closely with them.

A Rochester drug education program (LaCombe, Arseneau, Hamill, Hanson, Lookingbill, Meharg, Riley and Ware, 1970) used 25 interns and residents as the source and they received additional training—before they began their sessions with the students—through the hospital where they were employed; after that they went out into schools which had requested their services and held one hour sessions with groups of 20 to 30 students. Generally, the sessions began with a 15 to 20 minute lecture and the remaining time was devoted to discussion. Unfortunately the program is very short but unlike most relying on experts it involved only small groups of students at one time.

Kratz (1970) reported on a similar program using specially selected and trained fourth and fifth year pharmacy students who began their program, however, with a film to stimulate discussion and then set up a panel to answer students' questions. The program has been presented both to large assemblies and individual classes. Morris (1971) also described how specially trained pharmacy students might be used in an entire community education and rehabilitation program.

Another method of drug education involves students as both the source and receiver of communications, the idea being that drug issues are difficult legally and morally and not easily discussed with such authority figures as teachers. As well, students are very much influenced by their peers, and peer group pressure exerts a tremendous control over behavior, so that discussion and learning should be facilitated when students organize and carry out the course themselves.

Of the methods so far discussed in this chapter the peer-oriented approach is the most recent, and perhaps it has been imitated in response to what many educators view as the failure of other methods.

Basically, there are two types of peer group or peer oriented approach: in the first, students are selected, given special training and then they conduct programs among groups of younger students (Student Leader Approach). In the second case, these specially-trained students return to their own classmates or peers and carry out a drug education program (Peer Group Approach) or student groups teach themselves about drugs. Unfortunately, at present, there are few well-documented accounts of this last type of program in the literature. Only one program (Dearden and Jekel, 1971) relies on true peer groups but in this case the teacher was expected to play a large role.

There are at least three programs where students are selected, trained and given the opportunity to teach younger students. One of them took place in Coronado, California (Jordan, 1968), and its early phases involved students working with teachers to research material on drugs and drug use, with special experts brought in for consultation. Students then devised a program including visual guides, displays, etc., as well as course content. Specially selected students used this program to communicate information to younger students.

Miller (1971) reports on a similar type of program used at Carmel High School, Carmel, New York, in which a small group of student applicants were specially selected on the basis of their skill at writing essays on community problems—and a personal interview. These student leaders, who were paid for their services, worked with volunteers to research and develop a health education curriculum. The original plan called for each student leader to teach a one day class but it became clear that simply replacing the teacher with a student or group of students did not work well, and the plan was revised. In the final program, the classes were arranged into small groups (five or six people) based on friendship, and with each electing its own chairman who was then trained by the student leaders and later taught his own group. Student leaders then became resource persons only stepping in when called upon to do so.

The final example (Lawler, 1971) had specially-trained students drawing up curricula guides and programs, but in this case the students who were to receive the program were sixth grade public school students rather than just younger high school students. Lawler's program in Monticello, New York, also included a plan for evaluation of the program but the results are not available so far.

As mentioned earlier, there are no detailed descriptions in the literature of programs where specially-trained students played the role of instructor or groups of peers taught themselves about drugs without direct teacher supervision. Dearden and Jekel (1971) described a program where specially-selected students devised and administered a questionnaire for the student body. Teachers maintained a non-directive role but were available for consultation, and the questionnaire was essentially a vehicle for student interaction and discussion on the topic of drugs. This process was continued with different tasks and new groups of students, and its basic objective was to have specially-trained teachers continue to supervise the classes using a non-directive approach.

In the Ombudsman approach a teacher or counsellor with particularly good communication skills or rapport with students is selected as special adviser and educator for a group of students, or for the entire student body of a school. His or her role is to act as educator in the field of drug use, and as a confidential adviser. This approach goes beyond the usual scope of drug education programs, provides some counselling for the student, and the information giving aspect is intended to be much less formal than those described previously.

Louria (1971b) conceives of the Ombudsman as a teacher or group of teachers selected by both students and school administration. After special training Ombudsmen act as educators, giving information and answering student inquiries and also acting as guidance counsellors and giving referrals for additional help to those with drug problems. Because Ombudsmen must enjoy strict confidentiality they cannot, of course, be involved in punitive measures taken against students using or selling drugs.

Ungerleider and Bowen (1969) describe the approach in a California high school where the Ombudsman was a teacher who, before taking on the role, spent four months becoming knowledgeable about drug abuse and working with the local police narcotics squad interviewing drug users. While a large part of his role in the school involved counselling and referral of drug users, he received many inquiries about the hazards of various drugs, and presented his information on an informal—often individual—basis.

The educational aspect of the California program may involve only a very few students. Perhaps the more curious students, or those considering drug use, would consult the Ombudsman for information, but it is difficult to determine his scope. Certainly the elements of individual communication and strict confidentiality are advantages but it still needs to be shown that those most in need of information and advice actually receive it and that it has an effect on their subsequent attitudes and behavior.

Fortunately, the dullness of a large number of traditional programs is relieved by a small number which provide entertaining drug education. Unfortunately, these programs are only briefly described in the literature and although there are no reports of their effects, those in which students play an active role in organizing the production or exhibition may be of more value than the production itself.

One such program, called "Tripping Out", is produced by Burt and Stolberg. It involves a teaching kit composed of films and filmstrips as well as a guide. The producers describe it as an educational drug trip using music, films and narrative, and attempting to simulate the responses induced by a variety of drugs. Its use is recommended for grades 7 through college.

The Health Education Institute Inc. (1972) organized a program of two to two-and-a-half hours called a "health museum", and designed for students in grades 3 to 6. An instructor at the museum introduces such concepts as "no drug is in and of itself good or bad", and uses various exhibits set up in the museum to illustrate this. Teachers are provided with preliminary introductory material to prepare the students for their visit. A detailed evaluation of the program is planned but not yet completed.

One final novelty program—the Drug-O-Rama—is reported by Borhauer (1971), and involves students, teachers and parents. Students worked for a month studying various aspects of drug education and then for three nights set up 18 information centres in the school gym complete with posters, pamphlets and written reports, and then gave brief presentations on various drugs to an audience composed of parents and other members of the community. There were skits, drug information games and other rather untraditional methods, and this program is probably of most value for the preliminary research and organizational work it involved. In putting on this show students would get deeply involved in their work. They thus would probably acquire a good deal of information on the topic they studied and it may have its greatest effects on their attitudes and later drug use.

SUMMARY

Most drug education programs are conceptually and informationally oriented with teachers as the source; a few are peer run, and even fewer are novel or highly innovative. But knowledge of their effects is limited and evaluation will be difficult.

One cannot even guess at the relative effectiveness of these different types of programs because of many variables. While students tend to trust experts in the field of drug use for their information more than teachers, the programs reported in the literature where experts were the primary source were of very short duration while many of those involving teachers continued for periods of months or weeks. A major drawback to having experts as the source of drug information is their limited availability, as a result of which they are often forced to address large heterogeneous audiences when smaller groups with greater personal communication would probably be more suitable.

Friends are often a trusted source of information especially for students using drugs; however, the peer-oriented programs rarely concerned themselves with friendship patterns. Only in Lawler's program were groups of friends used but in this case the resource person was an older student. There may be some promise in these programs where older students teach younger ones because age differences are relatively small in most cases. As well, younger students tend to hold older ones in high esteem.

The Ombudsman approach provides a teacher whom students would probably view as an expert, and it allows a good deal of personal communication. However, the scope of such a program or the size of the audience actually reached has not been determined.

At present, many types of educational approaches have not been evaluated, and in general the more novel approaches have not been systematically assessed.

5 AUDIOVISUAL AND PRINTED MATERIAL EVALUATIONS

There has been a great increase recently in the number of printed and audiovisual materials on drug-related topics; indeed, most drug education programs utilize one or more of these materials (e.g., Johnson, 1968, Kline, 1972: Marx, 1968: Nowalk, 1969) and hence their effectiveness must depend upon them at least indirectly. This makes it of paramount importance to know how well they achieve the objectives set for them—or other objectives.

Printed materials include: fact sheets briefly describing the hazards of various drugs, complex tables listing all manner of drugs, their sources and possible effects, long or short pamphlets cautioning about drug use, colorful "wheels" describing drugs, books both short and feature length, study-guides for teachers and students, a programmed drug education textbook, work-books for students, comic books, and so on.

A very large number of films and filmstrips have been specially made and there are also tape recordings, cartridge-tapes and filmstrip packages plus a large number of commercially-made feature films (see Taqi, 1972, for a review). Except for these feature films, all have been developed with some sort of drug education role in mind, but none with any evaluation of how well their objectives are achieved.

While many printed materials and films have been prepared without explicit instructions about what effects they are expected to have, many carry underlying or blatant messages of one sort or another. Such messages may seek to discourage all drug use, or some—or "abuse" of all types. They may be concerned solely with helping people make negative decisions about drugs, merely providing information, changing attitudes about drugs or drug users, or frightening potential users.

Evaluations of audiovisual and printed materials for drug education purposes are rarely attempted at the time of production; moreover, much of this material especially films, is quickly outdated. Fashions in clothing or slang expressions, change rapidly; dated material probably will not seem relevant to today's youth. Similarly, effective films and articles lose impact with increasing years. Fortunately, a few evaluations are being made of these materials although the nature of these evaluations is rather limited. The largest and most extensive of these have been prepared by the National Coordinating Council on Drug Education in the U.S. and the Addiction Research Foundation in Canada.

Student Reactions to Audiovisual Materials

Student response to the various drug education aids also needs to be investigated. One study by McCune (1970) provides some information about reaction by students from 11 California school districts to films they had seen in drug education programs, and most of them, at both the junior and senior level, felt they had learned a great deal from the films. While most students replied that the films *did not* make them want to use drugs, McCune suggests that the variation in student responses may reflect differences in the way in which teachers use the films, and this raises a critical issue with regard to teaching aids which has received no attention to date.

Review of Films and Other Audiovisual Materials

Probably the first serious effort to evaluate drug films and other "audiovisuals" was undertaken by the National Coordinating Council on Drug Education (Hammond, 1971) which released two major reports of their evaluations which are essentially a reviewing process by "experts" in the area of drug abuse rather than by "consumers"—i.e. students, drug users or potential users. There are two procedures, one by a scientific review panel concerned only with the scientific accuracy of the material, and another by a "communications" panel. The scientific review assesses accuracy, factual presentation and scientific acceptability, and only if the criteria were met was a film seen by the communications group who determined whether the central message was effectively conveyed and whether the material was credible, timely, persuasive, and educational. Both reviews represent value judgments rather than objective statements, and the decision to classify films as "acceptable" or "unacceptable" scientifically were majority decisions, and not always unanimous. Decisions about communication effectiveness were even more difficult and were not categorized; rather they were descriptions of the strong and weak points.

The results of the NCCDE evaluations are interesting and informative for the results of drug education programs to be reported later. In the first report (Hammond, 1971) 34 of the films and 22 of the other audiovisuals (tapes, recordings, transparencies, film strips) were rated as scientifically acceptable. However, 22 films and 12 other audiovisuals were rated as scientifically unacceptable. The latest report, Hammond (1972a), includes general recommendations combining both scientific accuracy and communications effectiveness. Of 69 films reviewed only 11 were recommended according to these two criteria; similarly, only five audiovisuals out of 28 reviewed were recommended. Appendix A lists the acceptable and unacceptable materials from the second report. In both categories the outright "objectionable" materials outnumbered the "recommended"; in fact, by choosing at random, an educator would have only a one in eight chance of getting an accurate and effective tool according to the criteria used. Unfortunately, many of the objectionable and scientifically inaccurate films are frequently used in educational programs.

Hammond (1972a) stated that "the only thing (the films) seem to do well is to show the proper administration of illegal drugs", and that "the use of false, poor, emotionally oriented, and judgmental material is more harmful than no materials at all". In fact, Hammond called for a "national moratorium on the production and distribution of new materials" so that educators could evaluate present materials and get rid of inadequate ones.

The Audiovisual Group of the Addiction Research Foundation has also provided film ratings, and publishes *Projections*, a monthly review of films and audiovisual materials. The Group has reviewed some of the same films as NCCDE but somewhat more information is available on the reliability and validity of the ARF ratings.

The ARF Audiovisual Group consists of 10 to 20 experts in treatment, education, community development and pharmacology who meet to decide whether films should be endorsed for their accuracy and, if so, for which audiences and media they are appropriate. Participants give opinions on nine statements: 1) the scientific accuracy of information presented; 2) its merits as a teaching aid; 3) whether it is contemporary; 4) its clarity of message; 5) whether it could influence attitudes; 6) if it appeared believable; 7) its technical merits; 8) whether it maintained interest; 9) whether it was applicable to individuals from different social strata.

Ratings are done both before and after group discussions (Fejer, Hawley, Kuchar, Licitis and Webster, 1972). It has been found that discussions among participants changes the average ratings for about one-third of the films seen. Appendix B lists the films for which ARF *Projections* ratings are available and differentiates "endorsed" from the much more common "non-endorsed". Many of those endorsed are also seen as suitable only for restricted audiences and for certain types of situations, (e.g. not for broadcast, use with a discussion leader, etc.)

While some interest has been shown in the reliability of these ratings, further work on these lines is required. Goodstadt (1973) had the group make ratings of 55 films on two occasions, separated by varying periods of time over one year. Spearman's rank-order correlation for the two ratings was .88, ($p < .001$) indicating a high consistency between the two sets of ratings. Films ranked at the extremes on the first occasion tended to be in the extremes at the second rating, although the group doing the two ratings was not identical each time, and in that respect the error variance due to several sources, (e.g. the measuring instruments and the attributes themselves) is not known; however, these problems would tend to decrease rather than increase the stability of the ratings.

Certainly these types of reviews are much needed to ensure that invalid and out-of-date material does not make its way into the classroom. Wide availability of these ratings could help teachers to choose films more effectively for their educational programs. However, more information as to how ratings compare to students' reactions is needed.

One indication of the consistency of these ratings with those of young persons is available (Fejer *et al*, 1972). One film seen by this group (*Almost Everyone Does*) was given to four classes of high school students ($n = 76$) 14 to 15 years of age. One class received a positive introduction, one a negative one, and one neutral. The positive and negative conditions obtained ratings of +7.33 and +6.70, while the assessment group gave it a pre-discussion rating of +8.0. This indicates that the Audiovisual Group ratings may not be substantially different from those of target populations. However, a larger variety of films and target groups should be included in these studies.

In order to aid in the production of future films more detailed information on their effects is needed; the impact of certain types of films on attitude change, knowledge acquisitions, is an area of particular concern. Winick (1963) did attempt to gather more detailed information about the effects on over 1,000 New York teenagers of a popular commercial film about heroin addiction—*The Man With the Golden Arm*. The teenagers were given pre and post film questionnaires on their attitudes to addiction and drugs, and the film was running at local theatres during the period between testing. About 43 percent of the students receiving the post test had seen the film. Students were also classified according to personality adjustment as measured by the Bernreuter test. Attitude changes could be compared against a baseline provided by students who had not seen the film.

Winick found that exposure to the film, which presents heroin addiction as an "undesirable affliction", produced more permissive attitudes toward narcotics especially among the relatively less adjusted teenagers; in particular, most items showing a change dealt with more permissive attitudes towards the addict. It does appear that this particular film did have an effect on teenagers' attitudes towards drugs.

It may be possible to ascertain the impact of different types of movies on students' attitudes: dramas of the type studied by Winick probably have a different impact on attitudes than the more instruction oriented films where professionals (i.e. doctors or scientists) present the facts.

Printed Materials Evaluation

Print is probably more often used than audiovisual material in drug education; in fact, almost all programs involve some print reading either by the target group or the teachers involved. Unfortunately, far fewer results are available for print evaluations than for films or audiovisuals, and, while the NCCDE has begun print assessment reports are apparently not yet available. Existing data argue poorly for the future in that Hammond (1972b) has stated that "we (i.e. NCCDE) will probably recommend about 30 pieces of literature from over 800 separate items littering the countryside when our evaluation is completed this fall".

Kronitz (1972) provided one detailed evaluation of printed drug education materials produced by the Addiction Research Foundation, reviewing 65 pamphlets and "fact" sheets published in English, French and Italian. Personal interviews were conducted with education and community development staff from 25 ARF offices who were asked for comments on specific materials; the nature of gaps in printed materials, and suggestions for new materials. Educators, doctors, nurses, social workers, clergy and correction workers, from outside ARF were questioned along the same lines. All of these interviews suggested that only 21 of the 65 materials should be maintained without change, and others only with substantial changes. However, it was recommended that because of scientific inaccuracies or out-of-date presentations that 14 of the printed materials be discontinued. A more interesting aspect was that recommendations were made for new materials not as yet available.

The study concluded that evaluation of printed materials should be done in the preparation phases (before printing) and by testing on the right target audience; that there is a need for simple to understand printed materials which place drugs in a perspective including values, attitudes and other behaviors; that materials are especially needed for Italian and French speaking readers, alcoholics and their families, educators, parents and young schoolchildren.

Goodstadt, Schneir and Kronitz (1973) conducted one of the few studies of the actual users of printed material, interviewing people who received a pamphlet in response to a request for drug information. They encountered major difficulties with respondents' recall of material from this pamphlet and one wonders whether this is not a general difficulty for print materials.

Problems and Limitations of Audiovisual and Print Evaluations

Evaluative research on the materials for drug education programs has been rare and often not addressed to the most important questions. Film evaluations typically involve the opinions of experts and educators about scientific accuracy and persuasive value. Unfortunately, evaluations using the actual target groups—young persons, addicts, pill using or potential pill using adults—are almost never done. Evaluation of the actual effects of the materials on attitudes, beliefs or behavior related to drugs is even more rare. And there is some evidence that the contents of printed materials on drugs are soon forgotten. The anticipated value of all such materials is that they dissuade non-users from starting or persuade users to stop or modify their use. No film or printed material has actually shown that it can achieve or contribute to any of these aims. The additional problem is, of course, that so many evaluated materials have been judged "scientifically inaccurate", and this suggests that many of the changes they create could be unanticipated or negative —encouraging rather than discouraging drug use.

A further problem with print and audiovisual materials is that the effects which they are to produce and the target groups at which they are aimed, are rarely specified. We need a fuller exploration of their aims, evaluation of how well they are achieved and clear information on how they contribute to the overall field of drug education. At present, confidence cannot be placed in the educational value of a large number of materials, and given the extensive use of these, it should be no surprise that many drug education programs achieve little if any beneficial effect.

6 RESULTS OF DRUG EDUCATION EVALUATIONS

Compared to the vast number of implemented programs, the number having undergone even a rudimentary evaluation is very small—not more than a few dozen. The number of programs receiving any sort of published evaluation with the basic features of careful experimentation is probably less than a dozen; those receiving a comparison against a no-treatment control group no more than eight. Even fewer than eight have studied effects on drug use.

The purpose of this chapter is to outline the needs in educational evaluation, some of their problems, the actual evaluations and some of the neglected areas of evaluation.

Research on drug education, especially evaluations, is often not reported in standard scientific journals but is unpublished or in reports of limited circulation. This makes it difficult to be sure that all available reports have been seen. The current review is thought to be extensive if not complete. Many of the same drug education programs are reviewed for their effectiveness in a recent paper by Goodstadt (1974).

It can too easily be assumed that education in fact "educates", i.e. achieves its goals of changing knowledge, attitudes and behavior in a positive manner. Governments and funding organizations have often required that "evaluation" be built into grants for educational programs, but the results seem rarely available. There has also been a considerable increase in the numbers of films, pamphlets, study guides, and teacher training programs, few of which have received real evaluation before dissemination. The view can be taken that the greatest need is to evaluate existing programs at least for the introduction of new untested ones since the field is already overflowing with educational resources and programs whose effects are unknown or only vaguely glimpsed through a fog of claims and counterclaims about their rationale and value. Unfortunately, the problems of evaluation in this area are *not* more easily overcome than are those of other social and educative program areas.

A major problem is determining what constitutes a "successful" or "favorable" outcome to the program, and the methods of assessing it. If we assume that drug education has as its ultimate aim preventing students from starting drug use as well as decreasing existing use, how can such effects be measured? Attitude changes can be assessed and so can the extent of knowledge acquired. But if the audience is less favorable to drug use and knows more about drugs than it did before the program does this mean that its members are less inclined to *use* drugs? As we have seen, attitudes do not always reflect behavior nor does knowledge of effects and dangers ensure that one refrains from use. It is clear that the program organizer and evaluator must be clear about the ultimate purpose of the program. Unfortunately, few studies which have knowledge and attitude questions as the basis of their evaluation provide adequate information on the validity and reliability of their measurements.

One method of determining whether the program has had a preventive or deterrent effect is to ask the students about their actual use before and after it; this is especially valuable when compared to similar data from a control group, but one must consider a number of "use" characteristics, e.g. the number of new cases and the frequency of use among those taking drugs prior to the program. Changing *patterns* of use must also be considered, and this entails making value judgments: for example, if marihuana use decreases after the program but the use of alcohol increases was the program still a success? Boe (1971) has raised some of the issues in assessing rates and patterns of drug use after a drug education program.

Then there is the problem of determining how long a program maintains an effect. Evaluation testing can take place both prior to and immediately after a program and may well show signs of success in terms of attitude, knowledge and drug use changes. But is it still successful if such effects have disappeared two weeks or a month later? Clearly one must also evaluate the duration of the program's effects.

It is possible to design a tightly controlled program of evaluation complete with experimental groups, and a no-treatment control, but no program can completely filter out competing information and influences. A TV program on drugs may coincide with the education program and be watched by the no-treatment control group. Relevant articles and magazines are always available. Peer group pressures and discussions may militate against program effectiveness. The control of information input from various sources is difficult especially when question and answer periods or discussion groups are included as part of the design. Certainly, the control possible in evaluation of drug education programs is not ideal.

There are also many practical problems involved in evaluation: public opinion is not always in tune with scientific methods; parents may be unhappy if their child is to take part in an "experimental" program, or may feel that the child is being neglected if he is part of a 'control' group which will receive no drug education. Moreover, community or school administrators may have strong prior opinions about testing of certain techniques and not allow such programs in their areas, and this to some extent is understandable when one considers the backlash of public opinion which may occur should a particular program have negative results such as increasing the rate of drug use. Requiring students to answer questions about their personal use of drugs is in itself not often readily accepted by the community, and it is often impossible to assign students randomly to experimental or control groups; rather, whole classes must be used as the sample unit.

Perhaps the most perplexing problem concerns the interpretation and future use of results from evaluation studies. If a program should fulfill its aims, and evaluation has been conducted according to reliable scientific procedures (i.e. has experimental and no-treatment control groups) what generalizations can be made from this finding? Was the source particularly effective? Was the information accurate? Were student discussions the most effective part? In other words, was it a general method that can be reproduced in other areas which was effective, or was it some small facet of the program which produced the favorable results? This issue, unfortunately, is beyond the scope of all programs evaluated so far—but it cannot be ignored. Perhaps this stage in evaluation of drug education programs has not yet been reached, and it is necessary first to find a program showing favorable results and then dissect it into effective versus non-effective factors—a necessary step in evaluation if successful programs are to be replicated.

Certainly, in some instances, it will not be necessary to have evaluated programs for practical situations. Many settings in which drug education is introduced need programs for reasons related to political, social or parental pressures, and in these cases the need may be merely to have a visible and popular program with no necessarily positive effects; at times, merely to demonstrate that something is being done is sufficient. However, the ultimate solution of educational problems will depend on evaluation studies.

The evaluated drug education programs available in the literature can be divided into studies with and without control groups. Naturally, those with control groups are the ones which create the greatest possibilities of firm conclusions as to effectiveness.

Evaluation of Teacher Programs

At this stage, the great need is to evaluate teacher programs in a more controlled and systematic fashion than has so far been the case, although Kittredge (1971) did describe informal evaluation by teachers who were asked how Wayne State University Drug Education Institute influenced their views on drug use—and about later activities or accomplishments when they returned to their communities. Most replies were favorable.

Feldstone (1970) provided a more extensive, but still uncontrolled, evaluation of a program sponsored by the United States Office of Education and including participants from 11 different states. Essentially, the program was designed to provide educators with the skills necessary to design effective drug education programs, and it involved a combination of lectures, small group discussions, talking with students, field trips, supplementary reading of resource material, sensitivity training as well as a simulation game where each participant played the role of a leader in his own community in an attempt to find out particular local needs. The teachers took part in the workshops along with a group of students and the course administrators. All three groups completed evaluation instruments so that results could be compared.

Participants were given pre- and post program knowledge tests, an attitude survey, and a "rigidity" test to determine communication skills. Evaluators also were in attendance during the workshop as participant observers. Generally, participants increased their knowledge level from the course. Attitudes toward marihuana—but few other drug issues—became more similar for the student group and the participants after the course; however, the attitude survey indicated that little change had taken place after the course. Also, little change was found in rigidity scores. The program did little to alter participants' attitudes or communication skills.

Although these types of follow-up do help to determine if the teacher is better equipped to teach drug education, they totally neglect the important matter of students' responses to either trained or untrained teachers; at present, we are not certain that trained teachers are more effective than untrained teachers in drug education, and we also need to compare types of teacher training programs for their relative effectiveness in changing both teachers' and students' behavior and attitudes to drug use.

Global Drug Education Evaluations

Several studies attempting global user evaluations of drug education are worth examining, although generally these evaluations are not positive. Goldstein (1972) surveyed university students' opinions of high school drug education programs and compared their opinions with personal drug use; specifically, he inquired about "organized" and "unorganized" experiences (i.e. reading, talking with peers, personal experience) among 97 students enrolled in the courses he taught. Most (81 percent) had experienced some organized drug education program during their high school education, especially in the later years, and about 57 percent had had some unorganized learning. Generally, the students preferred the unorganized programs although favorable attitudes toward organized programs tended to increase among those reporting less drug use.

While Goldstein is most concerned with students' opinions of the programs his data are of interest from another point of view: of those students reporting having experienced an organized program in school only about 22 percent report no drug use; in other words, 78 percent report using marihuana only, or marihuana and other illicit drugs. Of those reporting having experienced unorganized learning 75 percent said they had used marihuana alone, or marihuana and other drugs. However, of the 17 students who had no drug education experiences seven, or 41 percent, reported no drug use, and 59 percent marihuana or other illicit use. Surprisingly then, drug use was lowest among those students with no formal drug education experience at all.

It is tempting to make sweeping generalizations from this particular study. However, we are not given information on social variables which differentiate the groups nor on the types of high schools they attended, factors which may be more related to the lower drug use rates among the small group given no program than to the lack of a program. Macro systems (1972c) conducted a large but indirect study of local and national U.S. drug education programs interviewing a large sample of youth and "transmitter" groups. They found that 68 percent of transmitters and 75 percent of youth considered that drug education programs did not stop people using drugs. However, large proportions of those interviewed (43 and 30 percent respectively) did not answer the question. It is also uncertain what types and quality of education programs were actually experienced by those responding. This study gives little firm indication as to what education is ineffective and why.

More positive findings occurred in a Macro systems study (1972b) of drug education in New York City and employing methods similar to those in the national study. A major recommendation was that non-users (e.g. parents and regular teachers) should not provide drug education but should give way to ex-addicts and former users. However, 78 percent of the sample receiving a program aid replied that they had learned something from it. Only 31.2 percent believed that programs stopped people from using; 41.4 percent replied negatively, and for the others the question was unanswered or not applicable. Studies of this type are relevant to the question of effectiveness: but far more is learned from experimental studies of clearly described programs.

Evaluations Without Control Groups

Johnson (1968) based one of the earlier evaluation reports on a study of two-day "seminars" for 13 and 14 year olds. Although involving a number of sources, the program relied heavily on authorities or experts; basically, it was a value orientation program concerned with helping students make decisions about glue-sniffing, pills, marihuana and other hullucinogens. It tried to avoid preaching and lecturing and attempted to involve students in discussions.

The program had several stages—discussions in English classes, panel presentations by experts, a film (*Narcotics—Pit of Despair*) and a summary and evaluation session held in the English class. Evaluation of program impact depended on student affidavits about the program, e.g. "the majority (83 percent in grade 8; 66 percent in grade 9) of the students felt that the seminar had added to their knowledge of drugs and narcotics; about the same percent felt that the seminar influenced them against letting drugs be a part of their lives." This study contained no uneducated control group or groups treated in a totally different way and hence the observed results may not actually be due to the program. Also, program effects were not assessed by objective information concerning increases in knowledge levels or attitude change. Although students were asked about the probable effects on their drug use this occurred right after the program. Ideally, this should have been based on a change in drug use or before and after design, with the questions being asked some months after the course had ended. However, the results do suggest that the program may have some positive impact.

Nowalk (1969) describes a half day program with much the same format as that outlined by Johnson (1968). The plan included a lecture by an expert, plus films and discussions with experts. Students were later asked their opinions on the program and most (75 percent) rated the program favorably overall. The lecture was given an excellent rating by only 47 percent of the students but the same rating was given by 67 percent for the film. The discussion session with experts was rated most highly. No information was obtained on knowledge acquired, attitude change, or drug use.

McCune (1970) reported a similar but much more extensive study in California based upon the responses of 4,604 students from seven junior and seven senior high schools, which may not, however, be representative of drug education programs since fewer than half of the schools originally approached actually participated.

The author surmised that those which did not participate were aware of inadequacies in their programs; nevertheless, the results in the schools studied are of considerable interest even though the type and content of the educational programs employed are not described in detail.

The education programs and films used were generally felt to be effective by students although there are many anomalous findings. For example, about 40 percent of junior and 25 percent of high school students stated that "what I learned about drugs has already made me stop using drugs". Less than five percent at any school stated that "what I learned about drugs will probably cause me to try drugs". More than half of junior high school students said that the education will probably keep them from using, but this was true of only about 40 percent of senior high school students. Also, significant variations in responses occurred across the schools surveyed, and it would have been interesting to know more about the nature and quality of the education programs in different schools.

Attitude and drug use data were also somewhat inconsistent with the above results. Responses to five anti-drug attitude questions were compared for pre- and post instruction periods, and in only three out of seven districts did attitudes change significantly in a positive direction. The data on proportions of students using drugs in the pre- and post-instruction periods generally showed increases in use of marihuana, barbiturates, amphetamines, hallucinogens, opiates and inhalants. These increases appeared greatest among junior school students but again the variations were considerable from one school to another. Since there were no control schools not getting drug education it is impossible to conclude that programs did not at least reduce the rate of increase. These data were collected in 1968-69 at a time when drug use rates were increasing in many areas (Smart, Fejer and White, 1970) and perhaps there would have been greater increases without some drug education.

Eiseman (1971a) conducted an evaluation of a "student research approach" in teaching college students about drugs. Students were given course material throughout the year on drugs and later divided into groups to conduct their own research on the topic. Pre- and post knowledge tests were given to students to assess what they had learned from the course material, and a post-program questionnaire assessed the students' reactions to the instructor, course administration, content, and their own commitment regarding drug use; finally, students were examined on what they had learned from the research they had conducted.

Students' knowledge levels increased significantly after the course. Pre- and post tests were related to material presented during the course and not to the student research conducted. After the completion of the research projects the mean on the final examination was 45/60. Students generally had favorable reactions to the program feeling that it had increased their knowledge about drugs, helped them in developing their own personal views, better equipped them to evaluate literature on the topic, and was an effective learning technique.

While it is difficult to determine the contributions of the course presentation to the results from this particular study it does appear that the students learned more about drugs and felt it was beneficial. However, no information was collected on their attitudes toward drugs or their own personal use; again, unfortunately, the lack of a control group leaves considerable skepticism as to the contributing factors involved in the findings.

Swisher and Crawford (1971) also reported the effects of a single program for high school students and devised by a joint student-faculty committee which took the approach that: (i) teachers should not be involved in the presentation; (ii) the basis should be a psychiatric point of view presented by psychiatrists working with addicts; and (iii) rehabilitated users should be involved. Unfortunately, the program was of rather short duration—only three or four hours. Group discussions followed lectures by psychiatrists on information and opinions (grades 9, 10, 11). The fourth session for the grade 12 students involved patients from an addict treatment unit. No significant effect was found on pro-drug attitudes, but student information levels did increase. There was no significant reduction in marihuana use but data for other drugs were not analyzed. Surprisingly, students rated this program very positively but two of the objective measures of change showed little effect. Because there was no control group, statements about the overall value of the program are difficult to make.

One of the latest uncontrolled studies of a single program was published by Kline (1972), and while this program was also short—two weeks—it had a variety of interesting aspects: 650 junior high school students (grades 7 and 8) were given a multi-media course of two parts. On the first day the whole student population was exposed to "several hours" of films, recordings and slides on drug classification and physiological and psychological effects. Subsequently, one class hour a day for two weeks was spent following up some special aspect, using lectures, games or role-playing. Evaluations were made three weeks after the end of the program which was generally rated as fair and accurate by students, and ratings did not vary with frequency of drug use. Students rated the program as somewhat effective in reducing drug use among non-users, experimenters and regular users; however, female non-users were much more pessimistic than males about this aspect with one quarter of those who reported drug use saying that they had stopped because of what was learned in the course. Of those who wished to use drugs before the program 49 per cent reported that they would not do so because of it.

On the face of it these findings provide striking support for the value of the program; however, the follow-up period was short, and different results might have obtained had it been longer. Also, without a control group it is possible that the students who reported changing their minds might have done so anyway. It is well known that much adolescent drug use is experimental, and that once curiosity is satisfied drugs are given up.

One of the two evaluated programs involving ex-addicts was conducted in California among students in grades 5 to senior high school and also included the teachers (Kline and Wilson, 1972). It involved panel presentations focusing on factual information followed by small group interaction, with both parts led by ex-addicts. A total of 57 teachers and 1,026 students completed post course evaluations.

The majority (90 and 93 percent) of students and staff rated the presentation of the ex-addicts favorably; 92 percent of teachers reported that the program had helped them gain knowledge about drug use. Female students approved of the program more than males, and there were no major differences among grade levels. Student drug users and non-users showed no differences in approval-disapproval, and those who condemned drug use prior to the program, and those with more favorable attitudes towards use, reacted positively to the program.

This evaluation does provide valuable information on the reaction to a program using ex-addicts but tells little about its direct effects. The only attitude information derived is from content analysis of questions asked during discussion. Unfortunately, we do not know the attitude students' held prior to the course, and no information is available to determine changes in knowledge level or drug use.

Controlled Evaluations

There can be no doubt that evaluation studies using controlled comparisons offer the best hope for finding effective programs. However, these studies can be of several types one of which involves comparisons between different education programs, while another compares one or more programs with a 'no-treatment' group—a group which received no formal education program, although students in it may have been exposed to a variety of facts and attitudes about drugs. Little is known about the nature and quality of this informal education; ideally, students or classes should be randomly assigned to education and control groups although this is not often achieved.

One of the earliest and largest controlled evaluations was done in California in 1969 (California State Department of Education, 1970) and involved a study of existing programs in several areas of the state but did not include a 'no-treatment' control. However, less than half of the invited districts agreed to participate, with the refusals believed to come chiefly from those with inadequate programs. Various programs were included (e.g. peer-run programs, commercially developed packages, television based programs and "innovative" programs). The criteria used were changes in attitudes, knowledge and drug use over a period of about one month. In general, it was concluded that no program was more effective than the others; most had positive effects on attitudes and knowledge but little on drug use, and there were considerable differences among the 11 school districts with some showing substantial changes in knowledge and attitudes and some no change or negative changes. Without control groups it is very difficult to ascribe any of these changes to program effects.

One large and complex study which compared drug education programs without a 'no-treatment' control was conducted by Swisher, Warner and Herr (1972). In it, the effects of four approaches to drug abuse—model reinforcement group counselling utilizing a reformed drug abuser; a similar approach with a non-abusing model; verbal reinforcement group counselling and a "standard health unit"—were tested for their effects on attitudes, knowledge and behavior.

The counselling approaches varied in the different groups as did the types of leaders. The relationship-counselling groups encouraged free discussion of drug abuse problems according to student needs. The counsellors' role was to convey empathy, respect and genuineness and to "help the group members to accept, understand and express themselves", and counsellors were to remain neutral on the issues. Presumably, the counsellors were "non-drug-abuser" models but this is not clear. In the reinforcement counselling groups counsellors were not neutral, but oriented discussions toward reasons for *not* using (and alternatives to) drugs. They also reinforced negative statements about drugs. Both of these groups had counsellors; one had two non-abusing role models and the other had two former abusers as role models. The counselling groups met once a week for six weeks but the "standard health unit" was a 10 week segment. Neither the nature of this unit nor its basic approach has been described. Students for this study (n=216) were randomly assigned to the segments from grades 9 to 11, and while both grades showed post test increases in knowledge, neither displayed any change in attitudes to (or reduction in) drug use. Knowledge about drugs was changed as effectively by counselling as by classroom methods which are presumably cheaper and more efficient; also, counselling of the type used here does not confer any additional advantages, although not all of the counsellors in this study were judged effective. It would appear that the impact of the four types of education was minimal (since attitudes were not changed) but perhaps all were better than no education at all.

One of the first controlled studies was reported by Cox and Smart (1970) and entitled "A Failed Comparison of Structured and Unstructured Approaches to Drug Education". The title belies the considerable difficulties in establishing and running the study whose aim was to compare two forms of drug education, one structured so as to concentrate on information giving, and the other unstructured discussion. Both had control groups receiving no formal instruction. Evaluation was done directly following the course and was based primarily on attitudes. Students were asked to rate themselves and a variety of drug uses on a number of dimensions. Almost no pre and post differences occurred and several which did favored the controls. However, a variety of problems occurred in this study, e.g. students were not well prepared for it, often did not undertake assignments in the structured sections, appeared to show little interest in drug education and many objected to tape recording. While no real confidence could be placed in the strength of the manipulation, this study did suggest solutions to a variety of problems.

An approach based on the use of former addicts was evaluated in Boyle Heights, California, and entitled "Addicts in the Classroom" (Geis, Morgan, Schor, Bullington, and Munns, 1969). This community is basically composed of Mexican Americans and other ethnic minorities and has high rates of illicit drug use. The program was conducted in the community's four junior high schools, and the former addicts instructed both in teacher workshops prior to the program and in two of the four school programs. The addicts were not the only source within the experimental classrooms, the teacher also played an instructive role and films were used. The two "control" schools also received narcotics education but this was conducted only by teachers. No former drug users were employed and teachers in control schools did not receive workshop preparation.

Teacher workshops, student programs and a later parental program were evaluated using a number of different methods. Both experimental and control group schools were given pre and post knowledge and attitude tests. As well, teacher ratings of students were obtained during the program and researchers made participant observations of classroom sessions.

The tests results in the Boyle Heights study are of particular interest: while no significant differences were found on the knowledge and attitude inventory in pre-test, there were significant differences in the post test. Students having the experimental program with the ex-addicts tended, in the word of the author, to give "healthier" answers to attitude questions than those in the control program; moreover, experimental group students were better informed about drugs after the program than controls.

A small follow-up was undertaken about six months after the program but it involved interviews with only 15 students who had been in the experimental part and who were chosen by the school administration because they were more articulate than other class members. Those interviewed tended to have poor opinions of the films and the reading material, with talks by ex-addicts being the most popular part. Most students were favorable to the program and felt it should be continued.

While in this study no data were collected on student drug use, results on attitude and knowledge tests were in a positive direction. Many problems arose during the program between community members and the ex-addicts, and later between school administrations and the ex-addicts. The parental program was a failure and had to be cancelled. Because of the many problems and lack of renewed federal support the program was not continued the following year despite its positive results.

A complex but unsatisfactory set of drug education studies has recently been reported by Tennant, Weaver, and Lewis, (1973) as "four case studies" three of which were of programs for high school students and one for primary school students.

1. In one program, lectures and experimental demonstrations were given in one town but not in two nearby towns; effectiveness was measured by drug related hospital admissions and while the experimental town had fewer post course admissions, pre-course data were not available.

2. A traditional lecture and discussion program was evaluated with only a one month follow-up including attitudes, knowledge and intended drug use. Only 20 percent believed that the program would reduce their drug use, 23 percent felt that they would use more drugs. The lack of a control group makes it impossible to assess the impact of the program on these intentions.

3. No systematic evaluation of a drug abuse education van was made but informal evidence suggested that some students used illicit drugs after visiting it.

4. One program was designed for grade 5 and 6 students and involved classroom teaching by a teacher specially trained in drug-education. Highly favorable results were found in that far fewer students expressed

intentions to use drugs before than after the programs; again, no controls were employed.

Tennant *et al* (1973) concluded that drug education programs are not effective and perhaps can even be harmful, but the power of their studies to support these statements is not great; in fact, the results are inconsistent and all are based on less than adequate evaluations.

The most recent large scale comparative study was done by Swift, Dorn and Thompson (1974). They studied five types of lesson chosen because they were available and actually used in England rather than because they were thought to be especially effective. In one lesson no film, only a teacher presentation was used; in the others a medical shock value, personality or pharmacology film was shown. The time spent in teaching varied from 40 to 90 minutes and usually additional discussion followed later. A pre test and post test given two months afterwards assessed changes in attitudes, "images" and intentions for the 1,300 students taking part. In general, results show small effects among the various lessons and that drug users were unlikely to change their intentions to use drugs as a result of the lessons. Most kinds of lessons slightly increased anti-drug attitudes but made them more accepting of drug users. Experienced teachers might well expect a trivial effect from a single lesson and would anticipate far greater effects from intensive programs lasting weeks or months.

Studies with 'No Treatment' Controls

One of the earliest and most extensive education studies of drug use is the Coronado Values-Oriented Drug Abuse Program (Carney, 1971)—probably the only controlled study to show a positive effect on reported drug use. Teachers discuss the eight values based on the work of Lasswell as seen by Rucker, Arnspiger and Brodbeck (1969), and which are thought to relate to universal needs or wants, (e.g. respect, wealth, power, enlightenment, skill, rectitude, well-being, and affection). Teachers discuss these values with students, but also a series of readers are used and students are encouraged to place themselves in situations requiring decision making around these. No effort was made to preach about the values but situations were provided where they could be appreciated, and alternatives to many high risk behaviors such as drug use are suggested and discussed. The main assumption is that if students develop and cherish these values they will decide against drug use. These classes were not considered special "drug classes", and information on drugs was dealt with only when relevant.

The program makes use of a specially designed risk-taking questionnaire developed by Carney and given extensive pretesting before use in this last evaluation study. Essentially it assesses the values in terms of high and low gain placed on many different forms of behavior including sex, theft, sports, marriage, and drug use. The author hypothesized that the risk value of behavior such as drug use can be lowered, and attitudes to more desirable alternatives such as sports enhanced, by the value oriented teaching program. The questionnaire was used as a pre and post program index of the values placed on these various behavior forms.

The study reported the effects of the program on pupils in grades 4 to 12. In most grades control classes receiving the standard curriculum and traditional teaching methods were used but apparently some received no drug education. Carney found that the amount of drug use was lower among students who had experienced the value-oriented program than among control students. As well, attitudes toward drug use and other socially undesirable behaviors tended to be valued as more risky, with less gain attached to them among experimental students. The values on socially acceptable alternative or coping behaviors tended to be heightened. The program showed the greatest differences among younger rather than older students and among males rather than females.

It should be noted that Goodstadt's excellent review contains a reanalysis and critique of the data on significance. This review concludes that the pattern of the differences suggests positive effects but actual statistically significant differences are few in number and not large.

Although differences were not always large or consistent, this program does have some positive results and consequently deserves attention from those concerned with devising programs. As Carney (1971) stated, this was an all or none type of evaluation;, in other words, the effects of various components such as a felicitous choice of instructors cannot be separated out, and this is the next step; to determine the effects of the various source, message and additional receiver variables.

A much shorter program employing a variety of outsiders was conducted by Swisher and Horman (1970) with students at Temple University. This evaluation involved both post secondary students (undergraduate and graduate) and administrative staff. The program consisted of a day of lectures and discussions by "former drug users, psychiatrists, pharmacologists, and law encorcement agents". Fortunately, a control group of 50 persons who were invited but could not attend was available. Both experimental and control groups received pre and post test measurements of knowledge and attitudes, and, as expected, the experimental group changed more than the control group in knowledge. Statistically significant changes in attitudes were found only among undergraduates who, by the end of the program, disapproved of marihuana legalization and shifted toward viewing drug abusers as alienated. There was also a strong indication that participants spent more time than controls in self-initiated drug education activities after the meeting, such as reading, informal discussions, etc.

By far the most imformative discussion leaders were seen to be former drug abusers; the psychiatrist was ranked lowest with pharmacologist, psychologist and enforcement officer tied in between. Apparently, no evaluation was made on actual drug use by the participants in the course.

Another controlled study not assessing changes in actual drug use was conducted by Amendolara (1973) among 190 grade 7 students in a New Jersey public junior high school. Four of the eight grade 7 classes served as the experimental group and the other four comprised a no-treatment control group. Little information exists about the actual format and content of the program beyond the fact that it concerned narcotics, ran once a week for an hour and a half over 15 weeks, and was not highly structured. Drug attitudes and information level were measured by a 38 item scale. Changes in attitudes were examined in relation to IQ, sex, father's occupation and Bell Adjustment Inventory scores which measure home adjustment, health adjustment, submissiveness, emotionality, hostility and masculinity-feminity.

The experimental group showed significantly higher gains in attitude scale scores, i.e. more negative attitudes toward drugs and more information about drugs after the 15 week course than did the untreated control group. Attitudes and changes in attitudes did not relate to IQ, father's occupation, nor to Bell Inventory scores. However, male students showed more attitude change than females.

It is regrettable that this study did not give more details on the content and method used in the drug education program. Also, attitudes and knowledge are not separated in the data but grouped under the heading of attitudes. It would be valuable to know whether the experimental group actually changed their attitudes towards drugs and drug users or really only acquired additional information about drugs. Finally, we were not told how long after the course the students were retested nor how actual drug use changed.

One of the few evaluations with younger children has been reported by Richardson, Nader, Roughman and Friedman (1972) who studied very small samples of grade 5 children (N = 23 and N = 27). One group received a 10 hour course and the other received no special instruction. Attitude changes were assessed after two weeks but no program effect was seen. It appeared that the program was too difficult for the students, and this, together with the small sample size and the few evaluation instruments used, may have contributed to the results.

A controlled study by O'Rourke (1973) evaluated the effects of a course which implemented the revised New York State Curriculum Guide. Specifically, this study was concerned with the effects of the Guide on knowledge level among students in four high schools in Nassau County, New York. Those from two schools received the New York State Curriculum Guide program (Experimental Group); the other two schools received their regular health education program which included some information on drugs and alcohol but no special guidelines about them. A multiple choice knowledge test was given after the courses but no pre-test was made. The New York State Curriculum Guide course lasted six months in the two "non-experimental" schools, and the knowledge test was administered at the same time as those in the experimental group.

Those students receiving the Curriculum Guide program had a higher mean knowledge score, than the "non-experimental" group. As found in the Amendolara (1973) study male students appeared to change in the hypothesized direction to a greater degree than females. The boys in the experimental group had higher knowledge scores than the girls and the differences between males in the experimental and non-experimental goups were significantly larger than for females.

Again one is hampered in interpreting this study by the lack of tested basal knowledge levels; also, the so-called control group is not a real 'no-treatment' control in that it received some drug information. As the authors point out, it is impossible to describe how much or how little attention was paid to this topic in the health education program, and, as in the O'Rourke study, no data were available on actual drug use rates.

Another short program was evaluated by Lewis, Gossett and Phillips (1972) who ran a two-day course for high school students in which the first day was used to train student leaders to run group discussions to take place on the second day—when the program was therefore peer-oriented. Medical, legal, and mental health specialists provided the training which involved 15 percent of the student body in the experimental school; a nearby school was chosen as a control. About 10 percent of the students at each were surveyed before the program but the entire student body was resurveyed 19 days afterwards. Naturally, the program's impact may have been stronger if only the same persons had been surveyed at the two points, but in any case, the effectiveness appeared slight. Students at the experimental school showed a small, non-significant tendency to use fewer drugs than the controls in the post course period, and this is another case in which a program was highly rated by participants but no measurable effect could be found. Surprisingly, there was no effort to examine effects on attitudes or information levels.

A very ambitious controlled experiment reported by Stuart (1973) used two formats (student led, teacher led), and three content approaches (lesser drugs only, major drugs only, and both types), and also examined a no education control.

Nine hundred and thirty five students in grades 7 and 9 were randomly assigned by class to the various groups. The experimental groups received their drug education for one class per day for 10 weeks, and the topics included pharmacology, drugs and the nervous system, drugs and society. A common teacher-led format for the experimental groups began the program after which groups were split into teacher or student led sections. The student-led sections, however, were poorly attended and class participation was so inadequate that they had to be abandoned. "Lesser drugs" were defined as alcohol, tranquillizers, marihuana and caffeine; "major" drugs were LSD and other hallucinogens, amphetamines, barbiturates and narcotics. Evaluation of results was based on: (i) self-reported drug use and drug dealing in alcohol, marihuana and LSD; (ii) items indicating "worry about drug use" and (iii) multiple choice knowledge questions based on pharmacology. Unlike many studies of drug education considerable effort was made to establish the reliability and validity of the evaluation questionnaires. There were no significant differences among the format or content factors in any of the measures. However, students receiving any drug education programs compared to controls increased their knowledge about drugs but also their use of alcohol, marihuana and LSD, and their dealing in the latter two; not surprisingly, their "worry" about drugs also decreased compared to controls.

This is the only study which purports to show an increase in drug use *and* dealing, as a result of drug education, and it therefore merits some discussion. Stuart mentions seven caveats which should be noted:

1. All of the data are based on self-reports on anonymous questionnaires which have imperfect validity.

2. The results should not be generalized beyond the two teachers who taught a specific curriculum.

3. Possible response biases may have made the experimental subjects more honest than the controls.

4. The assessment did not examine the effects of the program on amphetamines, barbiturates or narcotics.

5. Subjects in the program were infrequent rather than committed users of drugs.

6. The follow-up period was only four months, and a longer period may have shown more favorable results (although this is seen as unlikely).

7. The results apply to programs which attempt to impart information rather than to promote attitude or value changes.

One further difficulty, perhaps as important as all of the others, is the tremendous amount of data loss which occurred because of the coding system: of the 935 students only 106 could be matched for three test periods, and the data loss is much greater for the experimental group than for the controls. From the data presented it appears as if students refused to cooperate in the follow-up rather than merely forgetting their code, and it would be important to know whether those who did cooperate—i.e. the 10 percent—were a true sample of those who had received the program, in terms of drug use, changes in use over the period of study and extent of influence of the program. Without this assurance the conclusions are difficult to accept.

The latest controlled study—Smith (1973)—involved a "values clarification" approach, compared to a cognitive approach, and an untreated control receiving no drug education. Students were randomly assigned to the two approaches or control group. In this study, groups of four to eight students met to "facilitate self-disclosure through trust, openness and interrelatedness". Group members were encouraged to raise their own questions about drug use, communicate with and seek others' opinions about the solutions. The more standard cognitive curriculum involved the usual one-way communication from the teacher with factual course materials and examinations. Evaluation did not involve drug attitudes or drug use behavior but evidence on preference for the type of teaching received and the number of pages read in a short book on drugs (Cohen's *Drug Dilemma*). In general, students preferred the group or values approach and learned more from it, judging by the number of pages read and scores on knowledge items. All three groups showed gains but the cognitive approach and controls showed no differences. It is unfortunate that (with such a clear learning difference) this study cannot tell us whether the values approach led to changes in drug attitudes or actual behavior.

There is one final evaluation study (Wiener, 1971a) undertaken in the Netherlands which may be of interest to the reader for future reference. The method (but not the results) was available at the time of this review. The program compared three types of drug education programs —mild horror, factual adjustment and individual adjustment—as well as a no-treatment contol condition. Approximately 1,500 students, ranging in age from about 14 to 17, took part.

The mild horror approach warned students about the dangers of drugs: only 45 minutes long, it included definitions, drug descriptions, dangers, and a consideration of some of the arguments used to justify use.

The factual approach provided detailed information about drugs, and reasons for and against use, leaving the conclusions to the students. As in the mild horror approach, it was evaluated after the presentation and then three weekly discussion groups were held each lasting 45 minutes; after the discussion sessions the program was re-evaluated.

The final approach—individual adjustment—was much more extensive than those previously mentioned. It aimed at providing a school environment where the student could openly discuss his problems, and was planned to extend over the school year and consist of weekly discussions among small groups of students and the teacher. An instruction and information booklet was prepared for the teachers involved.

Evaluation included an examination of student drug use, attitudes and social perception, social and demographic characteristics, and drug knowledge. For those students receiving the individual adjustment approach, items of interpersonal values and a teacher's rating were also included. These questionnaires were given prior to and immediately after the programs, and follow-up testing was conducted three to six months after completion of mild horror and factual programs, too.

This appears to be a relatively well planned program with a detailed evaluation. The results may add important information to the literature on drug education programs.

CONCLUSIONS ABOUT EVALUATED DRUG EDUCATION PROGRAMS

In general, the results of evaluation studies involve such a variety of approaches and findings that analysis is difficult. While their educational impact merits analysis a variety of problems remain and many types of programs have not been studied. Problems of design and measurement hamper many evaluations and few of the uncontrolled studies are able to tell us much about program effectiveness. Controlled studies yield the most useful information but they are few in number and inconsistent in outcome.

Do drug education programs really "educate"? This question can be answered in several ways: if their purpose is to generate changes in knowledge about drugs they are an overwhelming success. All programs which have assessed the effects on knowledge levels have found positive results. Even one and two-day programs (e.g., Swisher and Horman, 1970) have found such effects to be greater among the educated as opposed to the controls. Generally, there can be little doubt that a wide variety of educational efforts can create knowledge changes, and these efforts may involve teachers, curriculum guides, former users, student discussion leaders, or mental health professionals. However, it is uncertain how long such knowledge may be retained and how it might immunize against harmful drug use.

Conclusions are more difficult if attitude changes are considered to be a necessary part of the education process. Several studies without controls, (e.g. Swisher and Crawford, 1971, McCune, 1970, Tennant *et al*, 1973) have found no change or inconsistent attitude changes from pre to post tests. As well, Swisher, Warner, and Herr's (1972) comparison of four approaches, and Cox and Smart's (1970) comparison of two approaches found no attitude change in any of them. Other controlled studies such as the Coronado Program, the Boyle Heights Project, Swisher and Horman and the Amendolara study found positive attitude changes. On inspection, programs having positive attitude change are most likely to be of long duration, and to involve a predetermined attitude change orientation as opposed to merely presenting information. These important variables would of course require careful testing in a series of experimental studies.

The question "Does drug education really prevent or decrease drug use?" is especially difficult to answer. One problem is that only a few studies have inquired about effects on actual drug use. Several of those which have (e.g. Swisher and Crawford, 1971; Swisher, Warner and Herr, 1972; Lewis, Gossett and Phillips, 1972; and Stuart 1973) found no effect, or an increase in use, in the latter study. However, Kline (1972) and the Coronado Program, have found a decrease in use, while several others (e.g. Johnson (1968) Tennant *et al* (1973) have found data *suggesting* decrease. Of these, the Coronado project was the only well-controlled study to find desirable effects on drug use, and it centered on value change, was of long duration and established primarily for younger children. It seems clear from a number of studies that short educational courses, up to, say, 10 sessions, will have no impact on reported drug use.

There are many unclarified areas in the literature on evaluation of drug education programs. Three studies have placed some degree of emphasis on the use of ex-addicts (Kline and Wilson, 1972; Geis *et al*, 1969; and Swisher, Warner and Herr, 1972). Those by Kline and Wilson, and Geis *et al* found positive results in terms of favorable impressions of the program or knowledge and attitude change. However, only the one by Swisher, Warner and Herr reported on student drug use and they found no change. It is difficult from these data to draw any conclusions whatsoever about the use of ex-addicts in drug education. Similar problems arise when trying to generalize about other types of programs. The only one (Coronado) to find generally positive results is unique and should be tried elsewhere before too much is made of it.

Programs have been evaluated among a variety of age and educational groups including elementary school children, junior and senior high school students and one university student population; however, the types of programs given to each age level have varied. Only the Coronado Program has provided us with an evaluation which covers the effects of the program from grade 4 right up to senior high school. With this exception we are faced with the question of whether a program showing some positive effect among grade 7 students, for example, would have a similar effect among grade 12 students.

At present, it can be confidently stated that drug education courses of many types can increase knowledge levels, few can change attitudes and one has been shown actually to reduce drug use. The whole research area requires far more study and experiment along the following lines:

1. More validity and reliability checks on evaluation scales.

2. More study of the influences on ‘no treatment’ groups.

3. True experimental as opposed to quasi-experimental designs, involving random assignment to ‘no treatment’ and treatment groups.

4. Studies of different types of programs across a variety of age groups.

5. More studies which include actual drug use rates as part of their evaluation.

6. Studies of successful programs to determine what aspects (i.e. source, message, methodology, etc.) contribute to its effects.

7 SUMMARIES OF CURRENT RESEARCH NEEDS AND ASPECTS OF IDEAL DRUG EDUCATION PROGRAMS

The previous chapters tend to generate gloomy prognostications about the future of drug education. It is worth pointing out that drug education developed essentially out of a need to do something and do it quickly. Insufficient thought and planning went into many of the programs and many had no research planning or theoretical sophistication. "Crash program" approaches often have to be rethought once the original crisis is over. Out of this stage frequently comes the best and most carefully planned work.

The apparent demise of drug education is too early and based upon unrealistic expectations about what could be quickly achieved with fashionable but unresearched approaches. It is best now to take time to consider what is known about drug education, its theoretical underpinnings and how best to proceed with further research and program development.

Research on drug education defies easy summary: most of it was not conducted within any particular theoretical or practical framework but is program testing without underlying theory. Fortunately, the situation is somewhat different when research on persuasion relevant to drug education is considered. Most of this work can be fitted into an information-processing approach and this is the approach which should dictate the next steps in program construction and testing.

Current Research Needs: Information Processing

Considerable research has been done on some information processing variables but little on others; in general, source and receiver variables are most studied while channel and message variables are least studied. Unfortunately not much of the work on source variables has had practical effects on program establishment or assessment.

Source Factors in Drug Education. Sources "most often used" and their relative "credibility" have been frequently studied, and generally the results are consistent in that both students and adults derive most of their information from media and friends. Scientists, doctors and university professors are most credible for both students and adults; teachers usually have a relatively low credibility for drug information.

Unfortunately for easy programming, drug users turn out to use and trust friends more than mass media, teachers or more expert sources, and this clearly suggests the need for separately established programs for users and non-users. While there is little likelihood that this can be done in most school or mass media situations, "high risk" classes or groups can be identified (without risk to individuals) and given special programs. Based on studies done in Canada these groups would be males who are making poor progress in school or in terminal programs. Ideally, these classes should be given peer-run programs and programs by former drug users while other groups could be exposed to traditional experts or specially trained teachers. Generally, too, the higher the grade the more likely that peer approaches rather than traditional ones will be successful. Experimental studies varying sources and receiver characteristics have not been done with actual drug education programs; however, former users and peer approaches have been found to be effective in several studies.

Message Factors. Message variables have been rarely studied because most drug education programs give little indication of what messages are being given or how they vary with the type of source. It is most likely, for instance, that former users or peers give totally different messages than do teachers or 'traditional' experts. The only directly relevant message research has been done with fear appeals and clearly suggests that high fear appeals are superior to low fear appeals for newer drugs where attitudes and opinions are not clearly established. There is some indication that high fear appeals can be very effective where the source is a highly credible one. Drug education research should therefore attempt high fear appeals only with the most credible sources.

Degree of bias in messages has not been studied either. When giving drug education to an intelligent audience it is essential to present positive and negative aspects of the issue. Balanced messages are also essential where the audience is initially against the position desired. For example, drug users or potential users would be more persuaded by drug education urging non-use if presented in a balanced, many sided way. This argues for greater use of panel discussions, debates, seminars and the like for using groups and against the use of lectures, films and class lessons with potential users.

Channel Factors. Not much research has been done with channel variables in drug education. Several studies of mass media campaigns (e.g. smoking, drug use) have led to unimpressive results; however, comparisons with other methods have not been made. Mass media seem attractive because of their great capacity for reaching large numbers; however, drug users do not find them especially credible and there are problems with selective exposure to drug messages. Perhaps mass media have their largest role in confirming non-users in their abstention. Much research suggests that face to face communications in small groups would be best in drug education because these allow complex issues to be discussed and questions and answers to be exchanged. Drug education programs should be based mostly on small group discussions, especially where large proportions of users or potential users are involved.

Receiver Factors. Some discussion has already been made of receiver variables in relation to other source and communicator characteristics. A major problem with receiver variables is that little can be done about them; the audience can rarely be subdivided by previous drug use, personality variables, etc. It is therefore unlikely that major experiments can be done (in schools at least) where receiver characteristics are changed or manipulated. They represent a set of "givens" which must be taken into account but can usually not be improved. Most research on persuasion suggests that personality factors are not too important except for high anxiety, which is often associated with drug use. This suggests that, for a highly anxious drug using group, drug education should contain simple messages with easily available solutions or alternatives. Much research suggests that persuasability is greatest for eight or nine year olds and therefore that drug education should be started early.

We have already alluded to the differences between users and non-users in trust and credibility ratings, and although this search indicates that drug education for both groups should employ former users, this is more important for users than non-users.

Destination Factors. Research on destination factors is complex and, so far, bears little direct relevance to drug education programs without further investigations. Persuasion studies suggest that much attitude and behavior change is temporary (six months or less) and therefore that drug education should be continuous rather than sporadic. Much research shows a limited relationship between information and attitude about drugs and caution about their use, a fact which indicates that drug education programs changing knowledge levels or attitudes will not necessarily reduce experimental or heavy drug use. Criteria for drug education effectiveness have to be carefully chosen, and not assume that cautious behavior follows knowledge and attitude gains. Research also strongly suggests that drug education should get students to engage directly in behavior rejecting drugs—e.g. role playing, psychodrama—and that attitude change will follow rather than precede behavior change. Drug education which inoculates against attitude and behavior change by providing refuted counter-arguments should also be tried.

Source, Receiver, Channel and Destination Results from Drug Education Evaluations. Of all elements in an information processing model only source factors have received any real attention in educational evaluations. Generally, manipulations of receiver or destination variables have not been made. The available information should be derived only from controlled studies with pre and post measurements of change. Most drug education studies compare a single program against itself (pre, post design) or against a 'no treatment' control, and hence have little to contribute to research on source variables.

Interest has especially been taken in former abusers versus non-abusers as educators. Swisher, Warner and Herr (1972) found no differential effect of drug abuser models and non-abuser models on attitudes, knowledge or drug use; however, Geis *et al* (1969) found ex-addicts to be effective.

Stuart (1973) found no differential effect of student-led and teacher-led programs on three content approaches but the limitations of this study have already been noted. Similarly, a variety of packages (e.g. California State Department of Education, 1970) involving source and channel differences (peer-run commercial packages, television and "innovative" programs) found no differences. However, the methodological limitations of these studies limit conclusions from them.

Current Research Needs: Program Effects

In general, the interaction of source, receiver, channel and destination factors is largely unknown from present drug education evaluations. No programs studies have examined the differential effects on different sorts of users, nor looked at destination factors. It is also clear that many types of programs have been implemented but never evaluated. Among the evaluations needed before many drug education courses or programs could be assessed are:

1. Assessment of the benefits of teacher training courses including those based on traditional curriculum guides, special workshops, or internship work with addicts.

2. Studies of the value of curriculum guides in preparing teachers for drug education work.

3. Studies of the actual effects on behavior, attitude and knowledge of the various audiovisual and print materials used in drug education programs.

After these tasks have been undertaken and at least partially accomplished it would be necessary to assess the student programs actually using them plus those unevaluated ones with some probability of success. At least the following types of programs have not been evaluated in any careful way:

1. Programs based upon the teaching and application of scientific method to decisions about drug use (e. g. Barty, Bethell and Bellward, 1973).

2. Programmed learning texts (e.g. Cassell, 1971).

3. Disaster management approaches such as the Lockheed Drug Decision (Lockheed Education Systems, 1969).

4. The use of role models discouraging drug use (Evans, 1971).

5. Travelling experts such as those in the COST approach of Panzica (1972).

6. Use of medical and pharmacy students with high school populations (Kratz, 1970).

7. Real peer-oriented approaches (as opposed to those which are student led and teacher organized).

Ideal Drug Education Program Characteristics

It is valuable to state what characteristics an ideal drug education program should have based on current evaluations and information processing research. Currently, the "ideal" drug programs would be those in which maximum educational effect would be expected but also from which it was possible to learn something more of the best interaction of source, message, receiver, channel and destination. In general, the ideal would be to establish a variety of programs for different sources and receivers, but a few general principles are also worth keeping in mind:

1. All programs should be established as evaluation studies with pretest, post-test measures and follow-up some months after they end.

2. Evaluation instruments should have some reliability and validity associated with them. A variety of drug use, attitude and knowledge questionnaires have had these characteristics established (see, for example, Stuart, 1973; Swisher, 1973; Fejer and Smart, 1973).

3. Program evaluations should be based primarily on changes in drug attitudes and drug use behavior rather than merely on increases in knowledge levels. Most efforts to improve knowledge levels will be successful no matter what attempt is made.

4. Expectations of major effects should be based on long rather than short courses. Most drug education efforts lasting less than 10 or 12 class hours will have a limited effect on attitudes and behavior.

5. Effects should be judged over a long period of time, not merely immediately after a program but after six to 12 month follow-ups.

6. The ideal source depends upon the audience so that programs for users or high risk users would be best with student peers or former drug users. Sources should appear unbiased and credible, and should present balanced arguments to most non-committed, intelligent audiences. The ideal channel would appear to be face-to-face contact with small group discussions and attempts to answer questions. For drug using or high risk groups messages should be fairly simple and suggest alternatives to drug use. Ideally, drug education should begin with non-users at the age of eight or nine and continue for at least several years. The best programs will have some sort of continuous rather than sporadic education (e. g. one class per month for several years rather than blocks of five or six classes each year).

FILMS AND AUDIOVISUALS RECOMMENDED, RESTRICTED, AND UNAPPROVED BY THE NATIONAL COORDINATING COUNCIL ON DRUG EDUCATION*

Recommended:

Almost Everyone Does (Wombat Productions)
Any Drug Education Program That Talks Only About Drugs, is at Best —A Waste (R. Kruger, The Media Guild Inc.,)
Brian at Seventeen (National Institute of Mental Health)
Community as the Doctor (Dick Ham Productions)
Darkness, Darkness (Nolan, Wilton & Wootten Inc., & Haight-Ashbury Free Medical Clinic)
Drug Information Series—Narcotics (Guidance Associates)
Drug Information Series—Psychedelics (Guidance Associates)
Drug Information Series—Sedatives (Guidance Associates)
Drug Information Series—Stimulants (Guidance Associates)
Drugs: Friend or Foe? (Marsh Film Enterprises Inc.,)
Drugs in Perspective (V. F. Winchell—Individual Insight Inc.,)
The Effective Teacher: Drug Education (Guidance Associates)
Flip City: The Psychotropics and You (VTR Productions, Ltd.,)
For Adults Only (Professional Arts, Inc.,)
Glass Houses Nolan, Wilton and Wooten Inc.,)
Grooving (Benchmark Films, Inc.,)
H+2—Concerning Two Heroin Addicts (Al Coombes Productions)
Help (Concept Films)
I Think (G. Feldman—Wombat Productions Inc.,)
Is It Always Right to be Right (Stephen Bosustow Productions)
Let's Talk About Drugs (Multi-Media Productions Inc.,)
Marihuana: What Can You Believe? (Guidance Associates)
A Nice Kid Like You (Gene Lichenstein for the Group for the Advancement of Psychiatry)
Not the Giant Nor the Dwarf (NBC Educational Enterprises)
Scag (Concept Films Inc.,)

---

* List compiled from: *Drug Abuse Films* (Third Edition) The National Coordinating Council on Drug Education, 1972.

School Health Education Study—Concept #9: Use of Substances That Modify Mood and Behavior Arises From a Variety of Motivations (School Health Education Study)
Self Awareness Film Modules on Drug Abuse for High School Students—Part I—Fear; Part II—Humiliation and Anger; Part III—Compassion (R. Rubin—Film Modules Distribution)
Speedscene: The Problem of Amphetamine Abuse (a Richard Scott Production)
Up Front (D. Hoster—Aims Instructional Media Services, Inc.,)
Us (Robert Appelbe Productions)
Weed (Concept Films Inc.,)
We Have An Addict In The House (Communications Foundation Inc.,)
What Did You Take? (Knightsbridge Productions Inc.,)
What Do Drugs Do? (National Institute of Mental Health)

Restricted:

Acid (Concept Films, Inc.,)
The Answer is Understanding (National Institute of Mental Health)
Anything for Kicks (Design Center)
Are Drugs the Answer? (National Institute of Mental Health)
Beyond LSD (Max Miller—Avanti Films Inc.,)
Bourbon in Suburbia (Paulist Productions)
Busted (Oxford Films Inc.,)
The Case on Drugs: Where It Is—Where It Isn't (3M Company)
Changing (National Institute of Mental Health)
The Circle (National Film Board of Canada)
Community in Quest (National Institute of Mental Health)
Crisis House (Churchill Films)
Curious Alice (National Institute of Mental Health)
Curious Habits of Man (Dan Gibson Productions Inc.,)
Dealing With Drugs (Larry Rivkin and Charles Brodhead—Film Library)
The Dilemma of Drugs (Scott Graphics Inc.,)
The Distant Drummer (National Institute of Mental Health)
A Doctor Answers Your Questions About Drugs (B. V. Dryer—Media Medica Inc.,)
Drug Abuse Education & Information Slide Resource Kit (The American Pharmaceutical Association for the Bureau of Narcotics and Dangerous Drugs)
Drug Abuse: Everybody's Hang-Up (Smith Kline & French Laboratories)
Drug Abuse: One Town's Answer (Chas. Cahill & Associates Inc.)
Drug Abuse, Volume I (Medi Disc)
Drug Abuse, Volume II (Medi Disc)

Drug Abuse, Volume III Drugs Won't Get It, People Will (Medi Disc)
Drug Age—What Do You Think of Your Father (National Office of Catholic Radio and TV)
Drug Facts: Origins, Processes and Effects (M. Creedman—BFA Educational Media)
The Drug Puzzle (Church & Society of the United Methodist Church)
The Drug Scene (Hanna—Barbera Productions)
Drug Talk: Some Current Drug Programs (National Institute of Mental Health)
The Drug Threat: Your Community's Response (Guidance Associates)
Drugs and Beyond (National Institute of Mental Health)
Drugs and Decisions: Your Life (BFA Educational Media)
Drugs and the Body (DCA Educational Products Inc.,)
Drugs and You (Q—ED Productions)
Drugs and You (Hanna—Barbera Productions)
Drugs and You (Robert J. Brady Company)
Drugs Are Like That (Miami Jr. League Inc.,)
Drugs, Drinking and Driving (Chas. Cahill & Associates Inc.)
Drugs: Facts Everyone Needs to Know (Joseph Fiorelli)
Drugs: Helpful and Harmful (Wexler Productions)
Drugs in Middle America (NBC Educational Enterprises)
Drugs In Our Society—Alcohol: Decisions About Drinking (QED Productions, A Division of Cathedral Films Inc.,)
Drugs In Our Society—Tobacco: The Habit and The Hazards (QED Productions, A Division of Cathedral Films Inc.,)
Escape From Addiction (Richard Milbauer)
Escape To Nowhere (Professional Arts Inc.,)
Faces of Boredom (Pennsylvania Crime Commission)
The Family (National Institute of Mental Health)
Gale is Dead (BBC–TV)
Get High on Life (Dana Productions)
Girl on the 16th Floor (H. D. Fletcher)
Guidance for The 70's: Kids, Parents, Pressures (Robert Sande Productions)
Health Education Series—Drugs (D. C. Heath & Company)
Here's Help (Office of Communications—NIMH)
Hide and Seek (Center For Mass Communications, Columbia University)
The Hippie Temptation (National Film Board of Canada)
How Much Time (Macmillan Educational Services, Inc.,)
How Safe Are Our Drugs? (DCA Educational Products, Inc.,)
IE & T Drug Education Program (Scope)
It Takes A Lot of Help (Kemper Insurance Group)

Jordan Paul: One Teacher's Approach (National Institute of Mental Health)
11:59—Last Minute to Choose (Brentano Foundation)
LSD: The Acid World (Guidance Associates)
LSD: Lettvin vs. Leary (National Educational Television)
LSD: The Spring Grove Experiment (CBS News)
LSD—25 (Professional Arts Inc.,)
The Mad Chemist (Professional Arts Inc.,)
Marihuana (CBS News)
Marihuana (Max Miller/Avanti Films Inc.,)
Marihuana: The Great Escape (J. Gary Mitchell—BFA Educational Media)
Meeting (National Institute of Mental Health)
Methadone: Escape From Heroin (Stanley Friedman, WOR-TV)
Mr. Edler's Class (National Institute of Mental Health)
A News Story (National Institute of Mental Health)
No Expectations (The New Film Co. Inc.,)
One Approach (CASMAC Productions, Inc.,)
The Problem of Drug Abuse (Pharmaceutical Manufacturers Assoc.)
Rapping (A Lee Chapman Film)
Research Report: THC—The Chemistry of Marihuana (KCET)
The Ringer (Hurst—Metrotone)
The Seekers (Benchmark Films Inc.,)
Self Awareness Film Modules on Drug Abuse For Parents (Robert Rubin—Film Modules Distribution)
Self Awareness Film Modules on Drug Abuse For Teachers (Robert Rubin—Film Modules Distribution)
Sniffy Escapes Poisoning (Margolis—Fleming)
Students Look at Drugs (Eli Lily and Company)
Three (John Sughrue and Company)
Tripping (L. Chapman—Filmfair Communications)
Up Pill, Down Pill (J. Gary Associates)
Ups/Downs: The Story of Amphetamines and Barbiturates (Concept Films)
Use or Abuse (Films/West Inc.,)
A Walk In the Park (King Screen Productions)
What is Teaching? What is Learning? (National Institute of Mental Health?)
Who's Afraid? (Film Modules Inc.,)
World of the Weed (KCET)
You Can't Grow a Green Plant in a Closet (Roy Nolan Productions)
You Gotta' Even Open Your Eyes (Board of Church & Society of the United Methodist Church)

Youth Drug Ward (KQED-TV)

Unacceptable:

Another Kind of High—A Drug Rap Kit (Audio Marketing Inc.)
The Ballad of Mary Jane (Professional Arts Inc.,)
Can You Take It? (Richard Milbauer)
The Case on Drugs: Where it is . . . Where it isn't (3M Co.,)
A Crutch For All Seasons (American Temperance Society)
David (Drew Associates for Time Life)
Driving and Drugs (GM Photographic)
Drug Abuse: A Police Public Information Series (Robert J. Brady Company)
Drug Abuse—Glue Sniffing and Pills (Family Films)
Drug Abuse—Marihuana and LSD (Family Films)
Drug Abuse: The Chemical Tomb (Film Distributors International)
Drug Abuse: Who Needs It? (Marsh Film Enterprises Inc.,)
Drug Age—What Can We Do? (National Office of Catholic Radio & TV)
Drug Age—Why Marihuana? (National Office of Catholic Radio & TV)
Drug Decision (Techicion Education Systems)
The Drug Syndrome and The Teacher (Mindex)
Drugs and the Nervous System (1967 Version) (Churchill Films)
Drugs In Our Society—LSD: Worth the Risk? (QED Productions)
Drugs In Our Society—Marihuana: A Fad? (QED Productions)
Drugs In Our Society—Narcotics: Uses and Abuses (QED Productions)
Drugs In Our Society—RX: Not For Kicks (QED Productions)
Drugs In Today's World (QED Productions)
Easy Way Out (ACI Films Inc.,)
False Friends (Interfilm—London Limited)
Fight or Flight? (J & F Productions, Inc.,)
Focus on Drugs (American Educational Films)
From Runaway to Hippie (Cinema Verite for NBC News)
Glue Sniffing: Big Trouble In a Tube (Texas Alcohol Narcotics Education Inc.,)
The Hang-Up (United States Air Force)
High on the Campus (Gospel Films Inc.)
Hooked (Churchill Films)
I'll Be Seeing You (Rex Fleming—Aims Instructional Media Services Inc.,)
Jump (Visual Concepts Inc.,)
LSD (Bureau of Medicine and Surgery—U.S. Navy)
LSD: Insight or Insanity (Max Miller/Avanti Films Inc.,)

LSD: Trip or Trap? (Sid Davis Productions)
LSD: Trip to Where?(WABC-TV)
Marathon: Story of Young Drug Users (American Broadcasting Co.)
Marihuana: Don't Try It (Curriculum Studios Inc.,)
Narcotics: Pit of Despair (Film Distributors International)
Narcotics: The Inside Story (Charles Cahill and Associates, Inc.,)
Narcotics: Why Not? (Charles Cahill and Associates Inc.,)
A Parting Shot (New Directions)
The People Next Door (CBS)
The People US Pot (Sid Abel and Associates for Dept. of Defense)
The Pied Pipers (Granger Graphics)
Pot's A Put-on (Professional Arts Inc.,)
The Riddle (Helicon Films For Job Corps., U.S. Office of Economic Opportunity)
The Story of Joe: A Case History of Drug Abuse (Bruner Productions)
Tempted (Graphicom)
The Trip Back (Avon Productions Inc.,)
Trip to Where? (The Peterson Company)
The Use and Misuse of Drugs (DCA Educational Products Inc.)
Why Not Marihuana? (Texas Alcohol Narcotics Inc.,)

FILMS APPROVED AND NOT APPROVED BY THE ADDICTION RESEARCH FOUNDATION AUDIO-VISUAL ASSESSMENT GROUP*

Approved:

Almost Everyone Does (Wombat Productions Inc.,)
Heads You Win? (Addiction Research Foundation)
World of the Weed (K.C.E.T.)
Alcohol and Flying: Alcohol Nystagmus (Jamieson Film Company)
The Community As the Doctor (Dick Ham Productions)
The Woburn Project (Addiction Research Foundation)
Curious Habits of Man (Dan Gibson Productions Limited)
The Argument (Addiction Research Foundation)
Up Pill Down Pill (G. Mitchell—Holt, Rinehart & Winston of Canada)
Two Festivals (Addiction Research Foundation)
The House That Jack Built (National Film Board, Canada)
Ivan and His Father (Dimension Films)
Alcohol: How Much is too Much? (International Tele-film Enterprises)
Heroin (R. S. Scott—Holt, Rinehart & Winston of Canada)
To Your Health (WHO)
What Time Is It Now? (Gargano Productions Limited)
Every Night is Saturday Night (Addiction Research Foundation)
Detoxication Program (Addiction Research Foundation)
Drugs and the Nervous System (1972 version only) (Churchill Films)
A Firm Hand (Westminster Films Limited)
Beyond LSD (Film Associates)
The Summer we Moved to Elm Street (National Film Board of Canada)
Need For Decision (Peckham Productions Inc.,)
Hotel Dieu—Emergency Treatment of Acute Psychotic Reactions Due to Psychoactive Drugs (Addiction Research Foundation)

---

* List compiled from: *Projection* An Audio/Visual Review Service of the Addiction Research Foundation, 1971-1973.

The Secret Love of Sandra Blain (Los Angeles County Commission on Alcoholism)
A Time For Decision (Hollywood Film Enterprises Inc.,)
To See or Not To See (National Film Board of Canada)
Alcoholism: Disease in Disguise (Aegis Productions)
Why Man Creates (Pyramid Films)
Bitter Wind (Brigham Young University)
Alcohol (Moreland—Latchford Productions Limited)
Better Dead (Project Icarus)
No Tears for Kelsey (Insight Films—Paulist Productions)
Treatment of Acute Drug Overdose (Eli Lily and Company)
Bourbon in Suburbia (Insight Films—Paulist Productions)
The Sandalmaker (Insight Films—Paulist Productions)
I'm Dependent You're Addicted (British Broadcasting Corp.)
Hooks (U. S. Army)
Brian at Seventeen (National Institute of Mental Health)
I Think (Wombat Productions Inc.,)
Drugs—A Primary Film (Arthur Barr Productions Inc.,)
A Short History (Stan Phillips and Associates)
The Drug Problem: What do You Think? (Encyclopedia Britannica)
CTV Inquiry (CTV)
Gale is Dead (British Broadcasting Corp.)
Streetworker (Insight Productions)
Everyone A Winner (Addiction Research Foundation)

Undecided:

Girl on the 16th Floor (Howard Fletcher, Uniroyal)
Drugs: Helpful and Harmful (Wexler Film Productions)
Drugs are Like That (The Junior League of Miami Inc.,)
Do You Know Her? (Yantra Systems Limited)
Community in Quest (National Institute of Mental Health)
Right Here, Right Now (St. Francis Productions)
Ninety-nine Bottles of Beer (County of Los Angeles C.A.O. Motion Picture Unit)

Not Approved:

The Drug Scene (Hanna—Barbera Productions Inc.,)
Will You Listen If I Speak? (Rai Purdy Productions Limited)
The Ultimate High (Kiloran German and Jennifer Smart, Queen's University)
What Would You Do? (Film Distributors International Inc.,)
Focus on Speed (American Educational Films)
A Step From the Shadows (Russell—Manning)

On Your Doorstep (Drug Council Inc.,)
Lady Jane (Dennis Miller Associates)
Drugs and The Nervous System (1967 version) (Churchill Films)
Any Questions, Any Answers (Marshall Pictures)
Hooked (Churchill Films)
Narcotics—The Inside Story (Chas. Cahill & Association)
Drug Abuse—The Chemical Tomb (Film Distributors International)
LSD: Insight or Insanity? (Max Miller/Aventi Films Inc.,)
Point Zero Eight (CTV)
Speedscene: The Problem of Amphetamine Abuse (Bailey—Film Associates)
It's Best To Know (Swackhammer—Gordon Limited)
David: Profile of a Problem Drinker (National Film Board of Canada)
Monkey on the Back (National Film Board of Canada)
Like It Is (Public Safety Pictures)
Different Tune, Different Drummer (Alcohol Drug Education)
Keep Off the Grass (Moreland—Latchford Productions Ltd.,)
Beyond Winning (Johnson Nyquist Film Distributors International)
The Other Guy (National Association of Blue Shield)
Drugs Are Not The Problem (Brentwood Productions)
Man Isn't Dying of Thirst (Czech Export, Prague)
Beyond Kicks (National Film Board of Canada)
Family (National Institute of Mental Health)
The Drug Bug (WHO)
Who Cops Out? (Mental Health, Maryland)
Weed (Encyclopedia Britannica)
Thinking About Drinking (Alfred Higgins)

REFERENCES

Amendolara, F. R. Modifying Attitudes Towards Drugs in Seventh Grade Students. *Journal of Drug Education*, 3, 1973, 71-78.

American School Health Association and the Pharmaceutical Manufacturers Association, *Teaching About Drugs: A Curriculum Guide, K-12 (Second Edition)*, 1971.

Annis, H. M., Klug, R., and Blackwell, D. Drug Use Among High School Students in Timmins. Addiction Research Foundation Substudy, No. 1-38 & 39 & B1-71, Toronto, 1971.

Aubrey, R. F. School-Community Drug Prevention Programs. *Personnel and Guidance Journal*, 1, 1971 (a), 17-24.

Aubrey, R. F. Drug Education—Can Teachers Really Do The Job? *Teachers College Record*, 72, 1971 (b), 417-422.

Barty, N., Bethell, B., and Bellward, G. Drug Abuse Education: A Practical Approach for Elementary Schools. *Education Canada,* 13, 1973, 10-13.

Bedworth, D. A. Towards a Rational View of Drug Education. *Journal of Drug Education*, 2, 1972, 371-381.

Bedworth, A. E. and D'Elia, J. A. *Basics of Drug Education*, Baywood Publishing Company Inc., Farmingdale, New York, 1973.

Berelson, B. P., Lazarsfeld, P. and McPhee, W. N. *Voting*, University of Chicago Press, 1954.

Berg, D. The Non-Medical Use of Dangerous Drugs in the United States: A Comprehensive View. *International Journal of Addictions*, 5, 1970, 777-834.

Berscheid, E. Opinion Change and Communicator-Communicatee Similarity and Dissimilarity. *Journal of Personality and Social Psychology*, 4, 1966, 670-680.

Berty, E., West Virginia's Project Proposal for the National Drug Education Training Program, West Virginia State Department of Education, Charleston, West Virginia, 1970.

Bland, H. B. Problems Related to Teaching about Drugs. *The Journal of School Health*, 2, 1969, 117-119.

Boe, S. Philosophy and Objectives for a Drug Education Program. *The Journal of School Health*, January, 1971, 11-16.

Bogg, R. A., Smith, R. G. and Russell, D. Drugs and Michigan High School Students. Final Report of a Study Conducted by the Special Committee on Narcotics, Michigan Department of Public Health, 1968.

Borhauer, S. Prairie Junior High Drug Program. *The Journal of School Health*, June, 1971, 313-314.

Braxton, E. R. and Yonker, B.S. Does Being Urban, Poor, Black, or Female Affect Youth's Knowledge and/or Attitudes Relating to Drugs? *The Journal of School Health*, 43, 1973, 185-188.

Brock, T.C. Commitment to Exposure as a Determinant of Information Receptivity. *Journal of Personality and Social Psychology*, 2, 1965, 10-19.

Brown, B. J. (Ed.) *A Time Guide to Drugs and the Young*. Time Education Program New York, New York, 1970.

Burt, J. J. and Stolberg, D. C. Tripping Out. Department of Health Education, University of Toledo, Ohio.

Bureau of Narcotics and Dangerous Drugs of the U.S. Department of Justice. *Guidelines for Drug Abuse Prevention Education*, Washington, Government Printing Office, 1970.

Buss, A. H. A Follow-up Item Analysis of the Taylor Anxiety Scale. *Journal of Clinical Psychology*, 11, 1955, 409-410.

Cahill, T. J., Clarke, S. G. and Reusing, C. Some Recent Federally Funded Programs for Drug Abuse: A Perspective. *Journal of Drug Issues*, 1971, 253-263.

California State Department of Education. A Study of More Effective Education Relative to Narcotics, Other Harmful Drugs and Hallucinogenic Substances. A Progress Report submitted to the California Legislature, 1970.

Caliguri, J. P. Drug Education Guides Are Not Enough. *Journal of Drug Issues*, 1972, 37-42.

Carney, R. E. An Evaluation of the 1970-71 Coronado, California Drug Abuse Education Program Using the Risk Taking Attitude Questionnaire.

Cassell, R. N. *Drug Abuse Education*. The Christopher Publishing House, North Quincy, Mass., 1971.

Cherrington, B. M. and Miller, L. W. Changes in Attitude as a Result of Lectures and of Reading Similar Material. *Journal of Social Psychology*, 4, 1933, 479-487.

Christian, F. T. *Alcohol Narcotics Education: A Handbook for Teachers*. Tallahassee, Florida State Department of Education, 1967.

Cohen, A. R. Need for Cognition and Order of Communication as a Determinant of Opinion Change. In: Hovland, C. I. (Ed.) *Order of Presentation in Persuasion,* New Haven, Yale University Press, 1957, 79-97.

Cornacchia, H. J., Bentel, D. J. and Smith, D. E. *Drugs in the Classroom: A Conceptual Model for School Programs*. The C. V. Mosby Company, Saint Louis, 1973.

Cox, C. and Smart, R. G. A Failed Comparison of Structured and Unstructured Approaches to Drug Education. Addiction Research Foundation. Substudy No. 2-32 & 7-70, Toronto, 1970.

Daniels, R. M. Drug Education Begins Before Kindergarten: The Glen Cove, N.Y. Pilot Program. *The Journal of School Health,* 5, 1970, 242-248.

Dearden, M. H. and Jekel, J. F. A Pilot Program in High School Drug Education Utilizing Non-directive Techniques and Sensitivity Training. *The Journal of School Health*, March, 1971, 118-124.

Dorn, N. Drug Education—Is It Effective? *Drugs and Society*, 1, 1972, 21-24.

Dovner, L. B. A Community Approach to Drug Abuse Education. *The Journal of School Health*, 8, 1970, 417-419.

Drysdale, E. J. Youthful Drug Abuse: The Problem and Program. *Journal of Drug Education*, 1, 1971, 93-99.

Editorial Article. Some Recent Developments on the Drug Education Scene. *Journal of Alcohol Education*, 15, 1970, 18-24.

Edwards, G. *Reaching Out: the Prevention of Drug Abuse Through Increased Human Interaction* Holt, Rinehart, and Winston Inc., New York, 1972a.

Edwards, R. E. Graduate Drug Education Emphasizes People Involvement, Communication, Awareness, and Reality. *Journal of Drug Education*, 2, 1972b, 99-107.

Einstein, S., Lavenhar, M. A., Wolfson, E. A., Louria, D. B., Quinones, M. A. and McAteer, G. The Training of Teachers for Drug Abuse Education Programs: Preliminary Considerations. *Journal of Drug Education*, 1, 1971, 323-345.

Eiseman, S. Teaching About Narcotics and Dangerous Drugs: Further Findings About The Student Research Approach. *International Journal of Health Education*, 1971a, 139-144.

Eiseman, S. Education about Narcotics and Dangerous Drugs—A Challenge to Our Schools. *Journal of Drug Education*, 1971b, 1, 177-185.

Elseroad, H. O. and Goodman, S. M. Teenagers' Attitudes Toward the Use of Drugs, Alcohol, and Cigarettes. Montgomery County, Maryland Public Schools, Rockville, Maryland, 1972.

Evans, W. A. Why Don't They Believe us Anymore? Or Hypocrisy, Social Change and Credibility, *Journal of Drug Issues*, Oct.1971, 333-338.

Feinglass, S. A. How to Plan a Drug Abuse Education Workshop in: *Resource Book for Drug Abuse Education, Second Edition* National Clearinghouse for Drug Abuse Information, Rockville, Maryland, 1972.

Fejer, D., Hawley, P., Kuchar, E., Licitis, D. and Webster, C. Assessing Audiovisual Aids for Drug Education: Preliminary Study. Addiction Research Foundation Substudy No. 469, Toronto, 1972.

Fejer, D. and Smart, R. G. Druge Use Anxiety and Psychological Problems Among Adolescents. *Ontario Psychologist* 4, 1972.

Fejer, D. and Smart, R. G. Knowledge About Drugs, Attitudes Towards Legalization of Marihuana and Drug Using Behavior: How Are They Related? Addiction Research Foundation Substudy No. 495, Toronto, 1972.

Fejer, D. and Smart, R. G. The Knowledge About Drugs, Attitudes Towards Them and Drug Use Rates of High School Students. *Journal of Drug Education*, 3, 1973, 377-388.

Fejer, D., Smart, R. G., Whitehead, P.C. and Laforest, L. Sources of Information About Drugs Among High School Students. *The Public Opinion Quarterly*, 35, 1971, 235-241.

Feldstone, C. S. Evaluation of a Drug Education Training Program. Department of Psychology, Trinity University, San Antonio, Texas, 1971.

Flegle, J. Generalizations About Drug Education. *National Catholic Guidance Conference Journal*, 15, 1971, 266-272.

Gallatin Council On Health and Drugs, Teachers Inservice Education Proposal (1972-1973) 1972.

Geis, G., Morgan, E. L., Schor, M., Bullington, B., and Munns, J. G. Addicts in the Classroom: The Impact of an Experimental Narcotics Education Program on Junior High School Pupils. Unpublished Report, 1969.

Giffin, K. The Contribution of Studies of Source Credibility to a Theory of Interpersonal Trust in the Communication Process. *Psychological Bulletin*, 68, 1967, 104-120.

Goldstein, J. W. Drug Education Worthy of the Name. *Impact* 1, 1972, 18-24.

Goldstein, M. J. The Relationship Between Coping, and Avoiding, Behavior and Response to Fear Arousing Propaganda. *Journal of Abnormal and Social Psychology*, 58, 1959, 247-252.

Goodstadt, M. S. Myths and Methodology in Drug Education: A Critical Review of the Research Evidence. Addiction Research Foundation Substudy 588, 1974.

Goodstadt, M. S. Stability of Evaluations of Drug Education Films. Unpublished report. Addiction Research Foundation, Toronto, 1973.

Goodstadt, M. S., Schneir, M. and Kronitz, R. *It's My Life: An Evaluation*. Addiction Research Foundation Substudy No. 567. Toronto, 1973.

Grant, J. A. Drug Education Based on a Knowledge, Attitude and Experience Study. *The Journal of School Health*, 1971, 383-386.

Grant, R. H. Drug Education: What It Is And Isn't. *Journal of Drug Education* 2, 1972, 89-97.

Greenbaum, C. W. The Effects of Choice and Reinforcement on Attitude Change In a Role-Playing Situation, *Doctoral Dissertation*, New York University, 1963.

Greenberg, J. S. Drug Abuse and the Schools. *Journal of Drug Education*, 1, 1971, 171-175.

Haggerty, D. J., and Zimmering, S. Attitudes Towards Drugs and Drug Education. *Journal of Drug Education* 2, 1972, 63-80.

Hall, W. The Effect of Defined Social Stimulus Material Upon the Stability of Attitudes Towards Labor Unions, Capital Punishment, Social Insurance, and Negroes. *Purdue University Studies in Higher Education*, 34, 1938, 7-19.

Halleck, S. The Great Drug Education Hoax. *Addictions*, 12, 1971, 1-13.

Hammond, P. G. Drug Abuse Films. National Coordinating Council on Drug Abuse Education and Information, Washington, 1971.

Hammond, P. G. Drug Abuse Films. National Coordinating Council on Drug Abuse Education and Information, Washington, 1972a.

Hammond, P. G. Why Drug Abuse Education is Failing in America. Paper presented at 30th International Congress on Alcoholism and Drug Dependence, Amsterdam, 1972b.

Harnett, A. L. How We Do It. *The Journal of School Health*, 1971, 310-317.

Health Education Institute Inc. Personal communication on Hinsdale, Health Museum, Hinsdale, Illinois, 1972.

Higbee, K. L. Fifteen Years of Fear Arousal: Research on Threat Appeals—1953-1968. Psychological Bulletin, 72, 1969, 426-444.

Hochbaum, G. M. The Relation Between Group Members' Self-Confidence and their Reactions to Group Pressures to Uniformity. *American Sociological Review* 19, 1954, 678-687.

Hovland, C. I., Janis I. L., and Kelley, H. *Communication and Persuasion: Psychological Studies of Opinion Change.* Yale University Press, New Haven, 1953.

Hovland, C. I. and Mandell, W. An Experimental Comparison of Conclusion Drawing by the Communicator and by the Audience. *Journal of Abnormal and Social Psychology* 47, 1952, 581-588.

Hovland, C. I. and Weiss, W. The Influence of Source Credibility on Communication Effectiveness. *Public Opinion Quarterly* 15, 1951, 635-650.

Hoyt, D. P. and Magoon, T. M. A Validation Study of the Taylor Manifest Anxiety Scale. *Journal of Clinical Psychology* 10, 1954, 357-361.

Huberty, D. J. Drug Abuse: A Frame of Reference for Teachers. *The High School Journal* 55, 1972, 235-240.

Janis, I. L. Effects of Fear Arousal on Attitude Change: Recent Developments in Theory and Experimental Research. In Berkowitz, L. (Ed.) *Advances in Experimental Social Psychology* Vol. III New York Academic Press, 1967, 166-224.

Janis, I. L. *The Contours of Fear*, New York, Wiley and Sons, 1969.

Janis, I. L. and Feshbach, S. Effects of Fear Arousing Communications, *Journal of Abnormal and Social Psychology*, 48, 1953, 78-92.

Janis, I. L. and Field, P. B. Sex Differences and Personality Factors Related to Persuasability. In: Hovland, C. I. and Janis, I. L. (Eds.) *Personality and Persuasability*, New Haven, Yale University Press, 1959, 55-68.

Jansen, M. J. and Stolurow, L. M. An Experimental Study in Role-Playing, *Psychological Monograph*, 76, (31), 1962, #550.

Johnson, B. A Junior High School Seminar on Dangerous Drugs and Narcotics. *Journal of School Health* 38, 1968, 84-87.

Jones, J. W. *Drug Crisis: Schools Fight Back with Innovative Programs*. National School Public Relations Association, Washington, U.S.A.

Jordan, C. W. A Drug Abuse Project. *The Journal of School Health*, 1968, 38, 692-695.

Katz, E. and Lazarsfeld, P. *Personal Influence*, The Part Played by the People in the Flow of Mass Communication, Glencoe, Illinois, Free Press, 1955.

Kinsella, J. K. Confidentiality and Drug Education. *The International Journal of Addictions*, 6, 1971, 609-614.

Kittredge, R. Drug Education or Drug Miseducation—Which Will it Be? *National Catholic Guidance Conference Journal*, 15,1971, 227-233.

Kitzinger, A. and Hill, P. J. *Drug Abuse, A Source Book and Guide for Teachers* Sacramento California State Department of Education, 1967.

Kline, J. A. Evaluation of a Multimedia Drug Education Program. *Journal of Drug Education*, 2, 1972, 229-239.

Kline, J. A. and Wilson, W. M. Ex-Addicts in Drug Abuse Prevention Education. *Drug Forum* 1, 1972, 357-366.

Knower, F. H. Experimental Studies of Changes in Attitudes: A Study of Effect of Printed Argument on Changes in Attitude. *Journal of Abnormal and Social Psychology*, 1936, 30, 522-532.

Kohn, P. M. and Mercer, G. W. Drug Use, Drug-Use Attitudes, and the Authoritarianism-Rebellion Dimension. *Journal of Health and Social Behavior* 12, 1971, 125-131.

Kratz, A. M. Planning a Drug Abuse Prevention Program for Junior and Senior High School Students. *American Journal of Pharmacy*, 142, 1970, 180-183.

Kronitz, R. ARF Publications Evaluation Report. Addiction Research Foundation Substudy No. 493, Toronto, 1972.

LaCombe, M. A., Arseneau, J. C., Hamill, R. W., Hanson, J. C., Lookingbill, D. P., Meharg Jr., J. G., Riley, G. J. and Ware, D. E. High School Drug Education, an Interim Measure. *Journal of the American Medical Association*, 1970, 214, 1327-1328.

Larsen, B. Education As a Tool in Preventing Drug Abuse. *Journal of Alcohol Education* 1970, 15, 35-39.

Lawler, J. T. Peer Group Approach to Drug Education. *Journal of Drug Education* 1971, 1, 63-76.

Le Dain, G. Canadian Commission of Inquiry into the Non-Medical Use of Drugs. *Treatment*, Ottawa, Ontario, Canada, 1972.

Levy, M. R. Drug Abuse Education: A Pedagogical Schizophrenia. *American Journal of Pharmacy* 1971, 143, 51-58.

Lewis, J. M., Gossett, J. T. and Phillips, V. A. Evaluation of a Drug Prevention Program. *Hospital and Community Psychiatry* 1972, 23, 124-126.

Lockheed Education Systems *Drug Decision* Lockheed Aircraft Corporation, California, 1969.

Los Angeles City Schools, Division of Instructional and Planning Services Instructional Planning Branch. *Drug Abuse in the Elementary Schools*, Publication No. EC-341, 1970.

Louria, D. B. *Overcoming Drugs: A Program for Action*, New York, McGraw-Hill Book Co. 1971a.

Louria, D. B. The Drug Ombudsman: A New Role in Schools, *Drug Forum* 1971b, 1, 37-39.

Lumsdaine, A. A. and Janis, I. L. Resistance to "Counter Propaganda" Produced by One-Sided and Two-Sided "Propaganda" Presentations *Public Opinion Quarterly* 17, 1953, 311-318.

Maccoby, E. Effects of the Mass Media. In Hoffman, M and Hoffman, L. (Eds) *Review of Child Development Research*, Russell Sage Foundation, New York, 1964.

Mackell, T. J., Patti, A. and Zimmering, S. Preventing Drug Abuse—A Graduate Narcotics Institute for Teachers. *The Journal of School Health* 1969, 2, 113-115.

Macro Systems Inc. Final Report: An Inventory of School-Based Drug Education Programs Volume (II) Mimeo, 1972a.

Macro Systems Inc. Final Report: Statistical Summary of the Addiction Services Agency's Survey of Drug Abuse Education Effects in New York City Volume (III) Mimeo 1972b.

Macro Systems Inc. Evaluation of Drug Education Programs, Vol. 1: Main Report Vol. (III). Detailed Summary of Project Methodology, Vol. (IV) in depth Study on Impact of Drug Education in Six Communities, Mimeo, 1972c.

Martin G. L. and O'Rourke, T. W. The Perceived Effectiveness of Selected Programs and Sources with Respect to Preventing the Use of Dangerous Drugs. *Journal of Drug Education* 1972, 2, 329-335.

Marx, S. H. How a Health Council Developed a Narcotics Education Program. *Journal of School Health* 1968, 38, 243-246.

McCune, D. A. A Study of More Effective Education Relative to Narcotics, Other Harmful Drugs, and Hallucinogenic Substances. A Progress Report Submitted to the California Legislature California State Department of Education 1970.

McGinnies, E. Studies in persuasion III: Reaction of Japanese Students to One-Sided and Two-Sided Communications. *Journal of Social Psychology* 1966, 70, 87-93.

McGuire, W. J. Direct and Indirect Persuasive Effects of Dissonance-Producing Messages. *Journal of Abnormal and Social Psychology*. 60, 1960, 354-358.

McGuire, W. J. Resistance to Persuasion Confirmed by Active and Passive Prior Refutation of the Same and Alternative Counter Arguments. *Journal of Abnormal and Social Psychology*. 1961, 63, 326-332.

McGuire, W. J. Inducing Resistance to Persuasion: Some Contemporary Approaches. In: Berkowitz, L. (Ed.) *Advances in Experimental Social Psychology* Vol. 1 New York Academic Press, 1964, 191-229.

McGuire, W. J. Personality and Susceptibility to Social Influence. In Borgatta, E. F. and Lambert, W. W. (Eds.) *Handbook of Personality Theory and Research*, Chicago, Rand McNally, 1968.

McGuire, W. J. The Nature of Attitudes and Attitude Change. In Lindzey, G. and Aronson, E. (Eds.) *The Handbook of Social Psychology Second Edition, Vol. III*, Addison-Wesley Publishing Co., U.S.A. 1969.

McGuire, W. J. Designing Communications to Change Attitudes Regarding Drug Abuse. In Wittenborn, J. R. Smith, J. P., and Wittenborn, S. A. (Eds.) *Communications and Drug Abuse Proceedings of the Second Rutgers Symposium on Drug Abuse*, Charles C. Thomas Publishers, Springfield, Illinois, 1970.

Mercer, G. W. and Smart, R. G. The Epidemiology of Psychoactive and Hallucinogenic drug use. In Press: Israel, Y. (Ed.) *Research Advances in Drug Abuse*, Wiley, 1973.

Metropolitan Toronto Separate School Board, *Interim Curriculum Guidelines*, Toronto 1972.

Michigan Department of Education, *A Teacher's Resource Guide for Drug Use and Abuse for Michigan's Schools*, Michigan State Department of Education, 1970.

Mikeal, R. L. and Smith, M. C. A Positive Approach to Drug Education. *The Journal of School Health* 1970, 1, 450-453.

Miller, M. Drug Education: a Re-Evaluation, *Journal of Drug Education* 1971, 1, 15-24.

Moan, C. E. and Flick, G. L. Changes in Attitudes Toward Smoking and Communicator Credibility as a Function of Type of Communication *Psychological Reports* 23, 1968, 534.

Morelli L. V. Drug Education Training Program. *Journal of the Florida Medical Association* 1971, 58, 25-27.

Morris, R. W. The Role of a College of Pharmacy and its Alumni in Coordination of Community Drug Abuse Programs *American Journal of Pharmaceutical Education* 35, 1971, 834-842.

Mullin J. E. Personal Communication, University of Waterloo, Waterloo, Ontario, 1970.

National Clearinghouse for Drug Abuse Information *Resource Book for Drug Dependence and Abuse--Second Edition*, Rockville, Maryland, 1972.

Niles, P. The Relationship of Susceptibility and Anxiety to Acceptance of Fear—Arousing Communication. *Doctoral Dissertation*, Yale University 1964.

Nowalk, D. Innovations in Drug Education. *The Journal of School Health* 4, 1969, 236-239.

Nowlis, H. H. Communicating About Drugs. In *Readings in Drug Use and Abuse.* National Clearinghouse for Mental Health Information, National Institute of Mental Health, Chevy Chase, Maryland, 1969.

O'Keefe, M. T. The Anti Smoking Commercials: a Study of Television's Impact on Behavior. *Public Opinion Quarterly* 35, 1971, 242-249.

O'Rourke, T. Assessment of the Effectiveness of the New York State Drug Curriculum Guide with Respect to Drug Knowledge. *Journal of Drug Education* 3, 1973, 57-66.

Panzica, N. COST—an Approach to Kids. *Journal of Drug Education* 2, 1972, 23-29.

Panzica, N. Effect of Communicator Background on Credibility. *Journal of Drug Education* 1973, 3, 95-100.

Pascale, P. J. and Streit, F. A Study of the Credibility Factor in Drug Education Programs. *Journal of Drug Education* 1972, 2, 391-394.

Pearson, S. R. Why do Drug Education Programs Fail? *Journal of Alcohol Education* 1971, 17, 16-17.

Piorkowski, G. K. Drug Education at its Best—The Shaping of Values and Anti-Drug Attitudes. *Journal of Drug Education* 3, 1973, 31-37.

Poliakoff, M. S. Training Turned-On Health Teachers. *Journal of Drug Education* 1, 1971, 187-193.

Project Awareness, Sioux Empire Drug Education Committee Inc. Sioux Falls, South Dakota.

Rakstis, T. J. Operation Drug Alert: A Challenge to Involvement. *The Kiwanis Magazine* Summer 1969, 29-36.

Richards, L. Psychological Sophistication in Current Drug Abuse Education in *Communication and Drug Abuse Proceedings of the Second Rutgers Symposium on Drug Abuse.* Wittenborn, J. R., Smith, J. P. and Wittenborn, S. A. (Eds.) Charles C. Thomas Publishers, Springfield, Illinois, 1970.

Richards, L. G. and Langer J. H. *Drug Taking in Youth: An Overview of Social, Psychological and Educational Aspects.* Office of Scientific Support, Bureau of Narcotics and Dangerous Drugs, U.S. Department of Justice, 1969.

Richardson, D. W., Nader, P. R., Roughman, K. J. Stanford, B. and Friedman, S. P. Attitudes of Fifth Grade Students to Illicit Psychoactive Drugs. *The Journal of School Health* 1972, 42, 389-391.

Rifkin, A. One Psychiatrist's Views of Drug Education. *Journal of Drug Education* 1971, 1, 5-8.

Rucker, W. R., Arnspiger, V. C., and Brodbeck, A. J. *Human Values in Education.* Wm. C. Brown Co. Dubuque, Iowa, 1969.

School Health Education Study. *Health Education: A Conceptual Approach to Curriculum Design* 3M Educational Press, St. Paul, Minnesota, 1967.

Sears, D. O. Opinion Formation and Information Preferences in an Adversary Situation. *Journal of Experimental Social Psychology* 1966, 2, 130-142.

Simons, H. W., Berkowitz, N. N., and Mayer, R. J. Similarity, Credibility, and Attitude Change: A Review and a Theory. *Psychological Bulletin* 1970, 73, 1-16.

Singer, R. P. The Effects of Fear—Arousing Communications on Attitude Change and Behavior. Unpublished Doctoral Dissertation, University of Connecticut, 1965.

Smart, R. G. Alienation Among Adolescents, and Source of Drug Information. Addiction Research Foundation. Substudy No. 42-7-70, Toronto, 1970.

Smart, R. G. Age and Sex Differences in the Most Influential Source of Drug Information. Addiction Research Foundation. Substudy No. 43-7-71, Toronto, 1971.

Smart, R. G. Rejection of the Source in Drug Education. *Journal of Drug Issues*, Fall, 1972a, 55-60.

Smart, R. G. Selective Exposure to Information About the Harmful Effects of Marihuana and Tranquilizers. *Journal of Drug Education* 2, 1972b, 279-288.

Smart, R. G. and Fejer, D. Anxiety and Responsiveness to Fear—Arousing Information about Marihuana Use. Addiction Research Foundation. Substudy No. 9-7 & Jo-71, Toronto, 1971a.

Smart, R. G. and Fejer, D. Most Influential and Credible Sources of Drug Information for Adults: Differences Between Marihuana Users. Addiction Research Foundation Substudy No. 8-7 & Jo-71, Toronto, 1971b.

Smart, R. G. and Fejer, D. The Extent of Illicit Drug Use in Canada: A Review of Current Epidemiology with Clues for Prevention. In *Critical Issues in Canadian Society.* Boydell, C. L., Grindstaff, C. F. and Whitehead, P.C., Holt, Rinehart and Winston, Toronto 1971c.

Smart, R. G. and Fejer, D. Credibility of Sources of Drug Information for High School Students. *Journal of Drug Issues* 2, 1972, 8-18.

Smart, R. G. and Fejer, D. Knowledge and Attitudes About Drugs Among the Supposed Drug Information & Attitude Gap Between Teachers & Students: Implications for Drug Education. In press: *Journal of Drug Issues,* 1974.

Smart, R. G. and Fejer, D. The Effects of High and Low Fear Messages about Drugs. In press: *Journal of Drug Education*, Summer, 1974.

Smart, R. G., Fejer, D., and White J. The Extent of Drug Use in Metropolitan Toronto Schools: A Study of Changes from 1968 to 1970, Addiction Research Foundation, Toronto, 1970.

Smart, R. G., Fejer, D., and White, J. Drug Use Trends Among Metropolitan Toronto Students: A Study of Changes From 1968 to 1970, Addiction Research Foundation, Toronto, 1972.

Smart, R. G. and Jackson D. A Preliminary Report on the Attitudes and Behavior of Toronto Students in Relation to Drugs. Addiction Research Foundation, Toronto, 1969.

Smart, R. G. and Krakowski, M. The Nature and Frequency of Drug Content in Magazines and on Television *Journal of Alcohol and Drug Education* 18, 1973, 16-22.

Smith, B. C. Values Clarification in Drug Education: a Comparative Study. *Journal of Drug Education,*1973, 3, 369-376.

Smith, M. C., Mikeal, R. L. and Taylor, J. M. Drugs in the Health Curriculum: A Needed Area. *The Journal of School Health* 5, 1969, 331-337.

Snodgrass, J. *Family Life Education K-12* Palo Alto Unified School District, Palo Alto, California, 1968.

Spratto, G. R. Toward a Rational View of Drug Abuse. *The Journal of School Health*, 4, 1970, 192-196.

Stamford Public Schools and Stamford Board of Education. *Stamford Curriculum Guide for Drug Abuse Education.* J. G. Ferguson Publishing Company, Stamford, Connecticut, 1971.

State Street Center Number Nine, Youth Crisis and Growth Centre. *Drug Use and the Youth Culture*, Presented to the Office of Field Evaluation, Department of Health, Education, and Welfare, Washington, D.C., 1972.

Stotland, E., Katz, D., and Patchen, M. The Reduction of Prejudice Through the Arousal of Self Insight. *Journal of Personality*, 27, 1959, 507-531.

Stuart, R. B. Teaching Facts About Drugs: Pushing or Preventing? Unpublished Report. University of Michigan, 1973.

Stukat, K. G. *Suggestibility: A Factorial and Experimental Study*, Almqvist and Wiksell, Stockholm, 1958.

Swanson, J. C. Drug Education: Some Impressions From Experiences in Illinois, *Journal of Drug Education*, 1, 1971, 147-155.

Swift, B., Dorn, N., Thompson, A. Evaluation of Drug Education: Findings of a National Research Study of Effects on Secondary School Students of Five Types of Lessons Given by Teachers. Institute for the Study of Drug Dependence, London, 1974.

Swisher, J. D. and Crawford, Jr., J. L. An Evaluation of a Short-Term Drug Education Program. *The School Counselor*, 18, 1971, 265-272.

Swisher, J. D. ; Crawford, J., Goldstein, R. and Yura, M. Drug Education: Pushing or Preventing? *Peabody Journal of Education*, 44, 1971, 68-75.

Swisher, J. D. and Horman, R. E. Drug Abuse Prevention. *The Journal of College Student Personnel*, September, 1970, 337-341.

Swisher, J. D., Warner, R. W. and Herr, E. L. Experimental Comparison of Four Approaches to Drug Abuse Prevention Among Ninth and Eleventh Graders. *Journal of Counseling Psychology* 19, 1972, 328-332.

Taqi, S. The Drug Cinema. *Bulletin on Narcotics*, 24, 1972, 19-29.

Taylor, G. Toward a Model K-12 Program in Drug Education. *Thrust*, 1, 1972, 28-32.

Tennant, Jr., F. S., Weaver, S. C., and Lewis, C. E. Outcomes of Drug Education: Four Case Studies. *Pediatrics,* 52, 1973, 246-251.

The National Commission on Marihuana and Drug Abuse, *Drug Use In America: Problem in Perspective.* Second Report of the National Commission on Marihuana and Drug Abuse, U.S. Government Printing Office, Washington, 1973.

Thistlethwaite, D. L., de Haan, H. and Kamenetsky, J. The Effects of Directive and Nondirective Communication Procedures on Attitudes. *Journal of Abnormal and Social Psychology*, 51, 1955, 107-113.

The State Education Department Regents of the University of the State of New York, Drug Education: A Position Paper, *Journal of Drug ' Education* 1, 1971, 123-136.

Thompson, J. C. Blueprint for Colorado Schools in Alcohol, Drug and Tobacco Education. *The Journal of School Health* 10, 1969, 711-712.

Torrance, G. Trends, Impressions and Approaches to Drug Education. *The School Guidance Worker* 28, 1972, 27-30.

Toronto Board of Education, *Moods, Substances and People.* Toronto, Canada, 1969.

Triandis, H. C. *Attitude and Attitude Change* John Wiley and Sons Inc., New York, 1971.

Ungerleider, J. T. and Bowen, H. Drug Abuse and the Schools. *American Journal of Psychiatry*, 125, 1969, 1691-1697.

Veselak, K., Adamo, T., Morgenstein, M., and Strongin, H. Nassau Community College and the Drug Problem. *Journal of Drug Education* 1, 1971, 195-202.

Wald, P. M. and Abrams, A. Drug Education. In: *Dealing With Drug Abuse*, A Report to the Ford Foundation, Praeger Publishers, New York, 1972.

Watts, W. A. Relative Persistence of Opinion Change Induced by Active Compared to Passive Participation. *Journal of Personality and Social Psychology* 5, 1967, 4-15.

Watts, W. A. and McGuire, W. J. Persistence of Induced Opinion Change and Retention of Inducing Message Contents. *Journal of Abnormal and Social Psychology*, 68, 1964, 233-241.

Weinswig M. H. and Doerr, D. W. Drug Abuse: A Course for Educators. Butler University, Drug Institute, College of Pharmacy, Indianapolis, 1968.

Weinswig S. E. and Weinswig, M. H. Drug Education in the Seventies. *College Student Journal* 5, 1971, 17-19.

Wicker, A. W. Attitudes Versus Actions: The Relationship of Verbal and Overt Behavioral Responses to Attitude Objects. *Journal of Social Issues*, 25, 1969, 41-78.

Wiener, R. S. P. A Report on a Drug Education Program. *Journal of Drug Education* 1, 1971a, 305-315.

Wiener, R. S. P. Drug Taking at School Level: What Can Be Done About It? *British Journal of Addictions* 66, 1971b, 329-333.

Winick, C. Tendency Systems and the Effects of a Movie Dealing with a Social Problem. *Journal of General Psychology*, 68, 1963, 289-305.

WHO (World Health Organization) Proceedings of Conference on Epidemiology of Drug Use, London, 1973.

Wolk, D. J. Drug Education—An Overview. *Social Education*, 36, 1972, 866-868.

Zinberg, W. Communication reported in Chapter 5—Drug Education. Wald P. M. and Abrams, A. of *Dealing With Drug Abuse*, A report to the Ford Foundation, Praeger Publishers, New York, 1972.

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY

Price: 3.95

Printed in Canada